



**City of Westminster
Moran Street Comprehensive Plan
Parking and Traffic Study
Final Report**

November 2010

Prepared for:

CITY OF WESTMINSTER

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November 11, 2010

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Subject: Parking and Traffic Study for the Moran Street Comprehensive Plan in the City of Westminster

Dear Mr. Ozaeta:

KOA Corporation is pleased to present the attached Parking and Traffic Study for the Moran Street Comprehensive Plan in the City of Westminster. The study reviews existing parking and traffic conditions in the Plan area and evaluates future parking and traffic needs for the proposed Comprehensive Plan for expanding retail opportunities in this area of Little Saigon including the Asian Garden Mall. The study also provides recommendations for parking planning and recommended mitigation measures for expected traffic impacts of the Comprehensive Plan.

The study has been revised from previous versions to modify the study area and land use, including removal of project land use along Weststate Street and addition of a proposed hotel at Bolsa Avenue/Asian Garden.

This parking and traffic study has been prepared to meet the requirements of the City of Westminster. The report is being submitted to you for review and comments. Please contact our office if you have any questions about the report, or if you need additional information regarding the study. If there are any comments that require response or revisions, please notify our office as soon as possible for prompt revision.

It has been a pleasure to prepare this study for you and for the City of Westminster.

Sincerely,



Min Zhou, P.E.
Vice President

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- Appendix G – Level of Service Data, Future Conditions
- Appendix H – Traffic Model & Traffic Simulation Information

I. Introduction and Executive Summary

1.1 Introduction

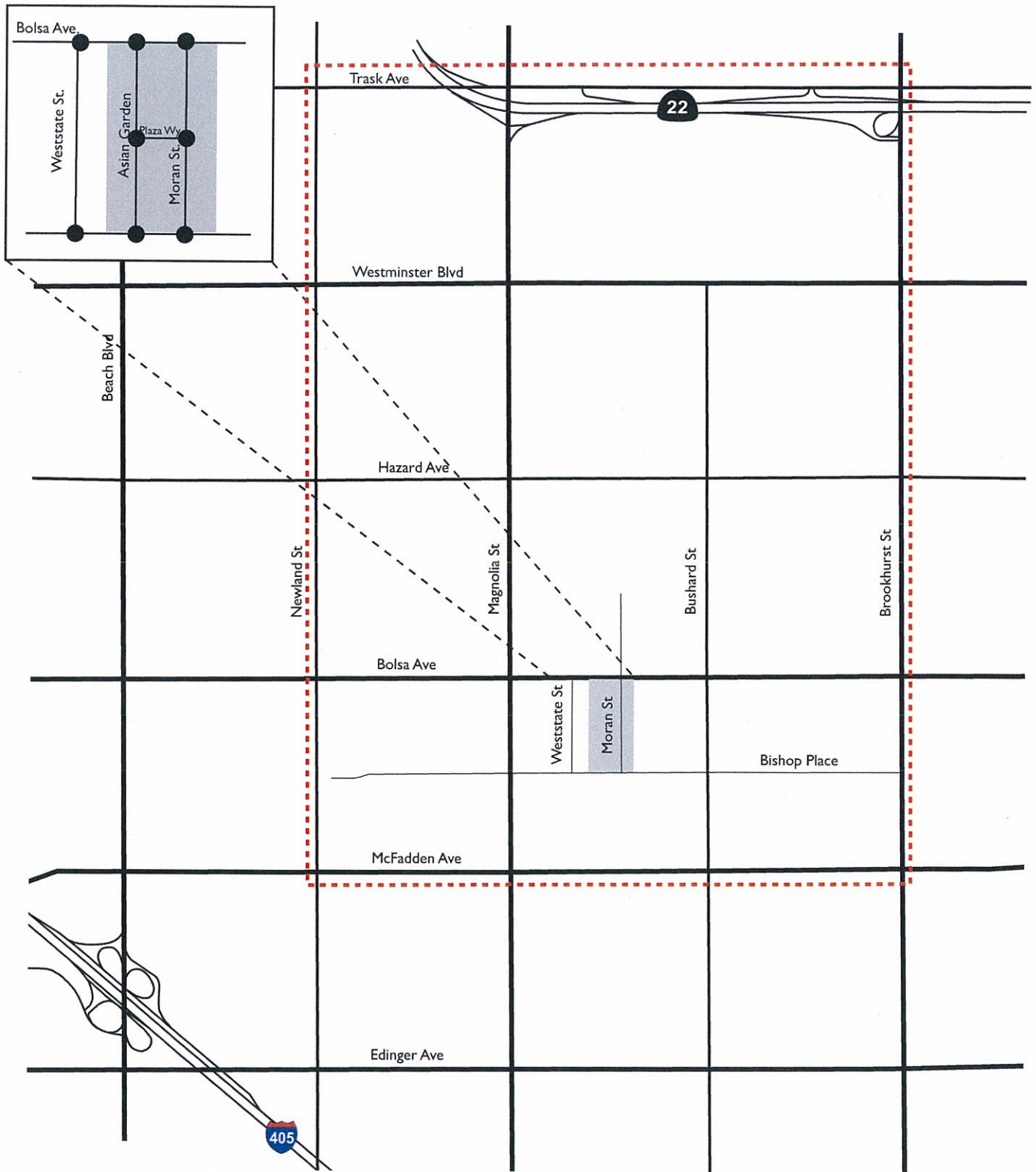
Project Description:

The City of Westminster has retained The Planning Center to prepare a Comprehensive Plan to guide development in a portion of the Little Saigon commercial area of the City. KOA Corporation has been retained to prepare a Parking and Traffic Study for the Comprehensive Plan. This study is intended to review parking and traffic conditions for changes in land use for an area of Little Saigon, focusing on existing properties along Moran Street and the existing Asian Garden Mall. The Comprehensive Plan proposes 71,760 square feet of specialty retail space, 108,540 square feet of shopping center retail, 33,180 square feet of high turnover restaurant, 41,790 square feet of dine-in restaurant, 38,400 square feet of office, 115 residential dwelling units, and a 120-Room Hotel with a 1,000 person capacity Banquet Room. There is no new land use or change in existing land use for properties along Weststate Street.

The parking and traffic study will analyze two scenarios ("Scenario 5" and "Scenario 6") that will have differing traffic impacts and parking needs. These scenarios were established in the Moran Street Strategic Framework and Priorities Workbook, prepared by The Planning Center for the City of Westminster.

The objective of the study is to establish parking supply recommendations for the proposed development scenarios and to evaluate expected traffic impacts of the scenarios. The report recommends potential traffic mitigation measures and proposes alternative parking and circulation strategies within the project site. The study focuses on the project area bounded by Bolsa Avenue on the north, Bishop Place on the south, the west property line for the Asian Garden Mall property on the west, and the east property line for properties along the Moran Street on the east. The study analyzes the potential for traffic impacts north to the SR-22 Freeway, south to McFadden Avenue, west to Newland Street, and east to Brookhurst Street. The study area is shown on Figure 1.1.

The Comprehensive Plan area is characterized primarily by small commercial businesses including retail, service-commercial, restaurant, office-related, auto repair, and light industrial businesses. Most of these businesses currently have their own dedicated off-street parking lots; however, some depend primarily on on-street parking located in front of each business, particularly along Moran Street. Many of the properties do not provide parking supply in compliance with the City of Westminster retail use parking requirements, as they were originally developed as light industrial properties with lower parking supply standards. The Asian Garden Mall, a popular shopping center, is the retail anchor for the area with over 100,000 square feet of retail space.



LEGEND

- Study Area Boundary
- Project Site
- Major Highway
- Secondary Highway
- Minor Highway



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A major planning effort is currently underway for the area, with consideration of mixed use retail/restaurant/office/residential developments sharing parking and access. The plan also includes a proposed parking structure, major streetscape and traffic calming improvements, and enhanced landscaping and architectural treatments to improve aesthetics and the urban environment.

The existing parking supply for the Comprehensive Plan area currently includes the main parking lot for the Asian Garden Mall, many smaller lots for the other commercial businesses, and a significant amount of street parking. A portion of the parking supply for the smaller businesses is in non-standard parking areas. These parking spaces either do not meet City location or dimension standards, encroach upon City property, or block access to doorways, utilities, or other facilities.

This existing parking supply will be modified by the development and streetscape improvements proposed for the project area. Some of the existing on-street parking spaces could be eliminated to provide space for landscaping, sidewalk improvements, street furniture, and other uses. The parking study assesses the expected changes in parking availability as it relates to the Plan, and makes recommendations for providing sufficient parking in the area to satisfy the expected demand from the proposed mixed-use projects envisioned for the site.

Specifically, the study addresses the following issues, goals, and objectives:

- Analyze existing and future parking supply and demand, and address parking needs for the site;
- Estimate required capacity of any parking structures proposed for the Asian Garden Mall or the Comprehensive Plan area;
- Develop a range of parking strategies and options, and identify the best parking strategies for the Comprehensive Plan area;
- Identify and address expected traffic impacts of the project, and recommend appropriate traffic mitigation measures;
- Recommend or evaluate appropriate internal circulation alternatives for the project.

1.2 Executive Summary

The parking study identified the level of existing parking supply by conducting an inventory of all available parking spaces along Moran Street and Bishop Place and the parking lots within the project area. There are approximately 1,573 existing available parking spaces in the area, including about 126 on-street spaces and about 1,447 off-street spaces (this includes 567 spaces in Saigon Villas recently constructed). The study found that the off-street parking supply for the Comprehensive Plan area is currently provided at an overall rate of about 3.3 off-street spaces per 1,000 square feet of floor area.

The study found that on-street parking in the project area is about 60% occupied during the weekday peak time periods (noon – 3 pm), and 75% occupied on weekends during peak shopping hours, with many blocks in the core area having on-street parking occupancy of 80-100% . Off-street parking lots

are about 90% occupied on weekdays, and over 95% occupied on weekends. When parking facilities exceed 85-90% full, they appear to be over capacity and result in traffic congestion in parking aisles, vehicles circulating looking for parking, delays waiting behind other vehicles waiting for a parking space to become available, and use of overflow parking areas.

The Comprehensive Plan focuses on two alternative land use scenarios, “Scenario 5” and “Scenario 6”. Both scenarios assume the same land use mix, providing for approximately 293,680 square feet of commercial/retail, restaurant, and office uses and 115 residential dwelling units in the project area. Parking allocation for the two alternative scenarios would be significantly different, however. Under Scenario 5, most land uses will provide needed parking on their own sites. Under Scenario 6, most parking supply is concentrated in just a few locations including parking structures. These alternative scenarios will have significantly differing traffic impacts and parking needs as discussed below.

General Parking Supply Findings and Recommendations

- The Comprehensive Plan area has a severe shortage of parking on weekends. The parking supply averages about 85% full on weekdays, but is over 95% full in the peak hour on weekends, with parking spill-out out onto nearby streets such as Bishop Place. The weekend parking situation is especially acute in consideration that many of the non-retail businesses in the Comprehensive Plan area have fully occupied parking spaces, but the businesses are not open on weekends.
- There will be opportunities to facilitate shared use of some future parking facilities within the project area under the Comprehensive Plan.
- Modern parking structures are always designed to allow for controlled entry (ticket dispenser machines) and exit (manned or unmanned exit lanes with special equipment). These facilities require careful design of access facilities that will typically result in loss of parking on the ground floor. Due to the expected shared nature of parking facilities in this area, they should be planned for controlled entry and exit, including the resulting loss of parking efficiency per floor.
- Portions of the project area will be appropriate for consideration of time limit or pay parking, particularly high demand curb frontages along Moran Street and along the Asian Garden Mall Drive Aisle adjacent to popular retail and restaurant establishments. A pay or controlled parking system may also be needed to provide for cost recapture for parking facilities that are provided by one property owner for the benefit of another property owner.
- Introduction of a limited amount of parking intense uses, such as restaurants, can be done without additional parking beyond that required for a similar amount of retail space. Since restaurant uses have much lower parking demands during most of the day, often their parking needs can be met by providing for shared parking arrangements with other uses that have lower evening parking demands such as retail and office.
- Parking can be provided along appropriate street frontages in some areas. However the parking supply provided by on-street parking will be negligible (up to 10%) toward reducing the amount of parking required in structures or lots.

- Strict time limits and enforcement will be necessary along street frontages in popular parking areas adjacent to restaurants and retail stores. Otherwise they will be occupied on a first-come basis and used all day by early arriving employees. Appropriate time limits will be from 30 minutes to 2 hours depending on location, to ensure short-term parking availability for customers of adjacent businesses. If strict time limits, enforcement, or parking charges are not applied, prime on-street stalls will likely generate traffic congestion from vehicles waiting for stalls to become available. Parking management strategies designed to provide for available parking along the subject curbs will be essential to obtain parking benefit from on-street parking.

1.2.2 Scenario 5 Parking Supply Overview

- Under Scenario 5, a parking structure of 652 spaces will be required to meet the parking needs of the Asian Garden Mall alone. A structure of this capacity will accommodate the peak weekend parking demand and would require 3 levels above the ground assuming the footprint on the existing parking lot. The parking structure ingress/egress facilities will need to accommodate approximately 580 vehicles per hour.

1.2.3 Scenario 6 Parking Supply Overview

- Under Scenario 6, the project area will need at least 1,166 unreserved parking spaces, 685 of which are required for the Asian Garden Mall. This scenario would permit development of each site without provision for on-site commercial parking and assumes that most parking would be provided off site at a central location (a new parking structure at Asian Garden Mall).
- A parking structure large enough to provide at least 1,166 spaces would likely require about 5 levels for parking at a rate of approximately 220 stalls per level if limited to the footprint of the existing Asian Garden parking lot site. The parking provided can be reduced if alternative parking facilities within the project site are identified. The maximum number of levels considered to be practical for operational purposes is generally believed to be 5 levels unless speed ramps are integral to the design. Speed ramps allow access to higher floors without driving past numerous stalls on lower floors. This type of system is used in Las Vegas Hotel parking lots and in large parking structures for newer retail developments such as The Grove Shopping Center in Los Angeles. This would likely result in the need for an additional floor to make up for parking lost to provide speed ramps. The speed ramps result in a reduction of approximately 10-15% of parking spaces per floor.
- The parking structure ingress/egress facilities will need to accommodate approximately 900 vehicles per hour under Scenario 6.
- This scenario assumes that the 322 surplus parking spaces in Saigon Villas are not included in the shared parking analysis or assumptions. However, these spaces may become available in the future for use in the larger project area. The off-site parking demand generated by the blocks on Moran Street is allocated to the structure.

- Under Scenario 6, it is suggested that reserved and secured residential parking will continue to be provided on each development site due to the need to provide residents with secure private parking close to their dwellings. Visitor parking would be provided on-site at the rate of 0.25 stalls/unit. Parking for retail, office, and other non-residential use would be provided in the parking structure.

1.2.4 General Circulation Findings and Recommendations

- The amount of traffic activity expected in the area will increase greatly, especially in the vicinity of Bishop Place due to the amount of parking, focus of access, and circulation system design. This activity cannot be met by traditional “Stop” controls such as boulevard “STOP” signs and limit lines on minor legs of area intersections and major driveways, because of traffic volumes along Bishop Place.
 - Traffic signals or all-way stops will be required for Bishop Place at Moran Street and Bishop Place at the Asian Garden Mall Drive Aisle depending on the scenario adopted.
 - Right-out access only is recommended for the structure exit proposed on Bishop Place.
- Internal circulation traffic controls are suggested or recommended based upon preliminary site development concept plans:
 - Traffic calming improvements and one-way southbound access is recommended for the Asian Garden Mall Drive Aisle north of Plaza Way;
 - Traffic signal timing improvements are recommended for Bolsa Avenue at Asian Garden, and Bolsa Avenue at Moran Street.

1.2.5 Scenario 5 Circulation Recommendations

- Asian Garden Mall Drive Aisle: Traffic calming (curb extensions or median island)
- Bolsa Avenue/Moran Street: 220-foot Westbound Left-Turn Pocket
- Bishop Place/Asian Garden Mall Drive Aisle: All-Way Stop, 140' EB LT Lane, WB RT Lane
- Bishop Pl/Moran St: All-Way Stop; Possible future signal, 140' EB LT Lane, second WB Lane
- Asian Garden Mall Drive Aisle/Plaza Way: All-way Stop
- Moran Street/Plaza Way: STOP sign on Plaza Way

1.2.6 Scenario 6 Circulation Recommendations

- Asian Garden Mall Drive Aisle: Traffic calming (curb extensions or median island)
- Bolsa Avenue/Moran Street: 180-foot Westbound Left-Turn Pocket
- Bishop Place/Asian Garden Mall Drive Aisle: Traffic Signal, 260' EB LT Lane, WB RT Lane

- Bishop Place/Moran Street: STOP sign on Moran; future All-way stop, 140' EB LT Lane, second WB Lane
- Asian Garden Mall Drive Aisle/Plaza Way: All-way Stop
- Moran Street/Plaza Way: STOP sign on Plaza Way

Figure I.2 on the following page identifies recommended circulation improvements for Scenario 5. Figure I.3 identifies recommended circulation improvements for Scenario 6.

I.2.7 Intersection Improvements

- Intersection improvements are recommended as mitigation measures to meet Year 2030 traffic demands at locations where the traffic from the Comprehensive Plan will cumulatively impact intersection conditions. These include:
 - Magnolia Street /Trask Avenue: Construct Southbound Right Turn Lane
 - Magnolia Street /Hazard Avenue: Restripe for third Southbound Through Lane
 - Magnolia Street /Bolsa Avenue: Restripe for two Southbound Left Turn Lanes
 - Magnolia Street/Bishop Place: Restripe for third Northbound Through Lane
 - Weststate Street/Bishop Place: Stripe Southbound Right Turn Lane
 - Brookhurst Street/McFadden Ave: Traffic Signal Optimization/Synchronization

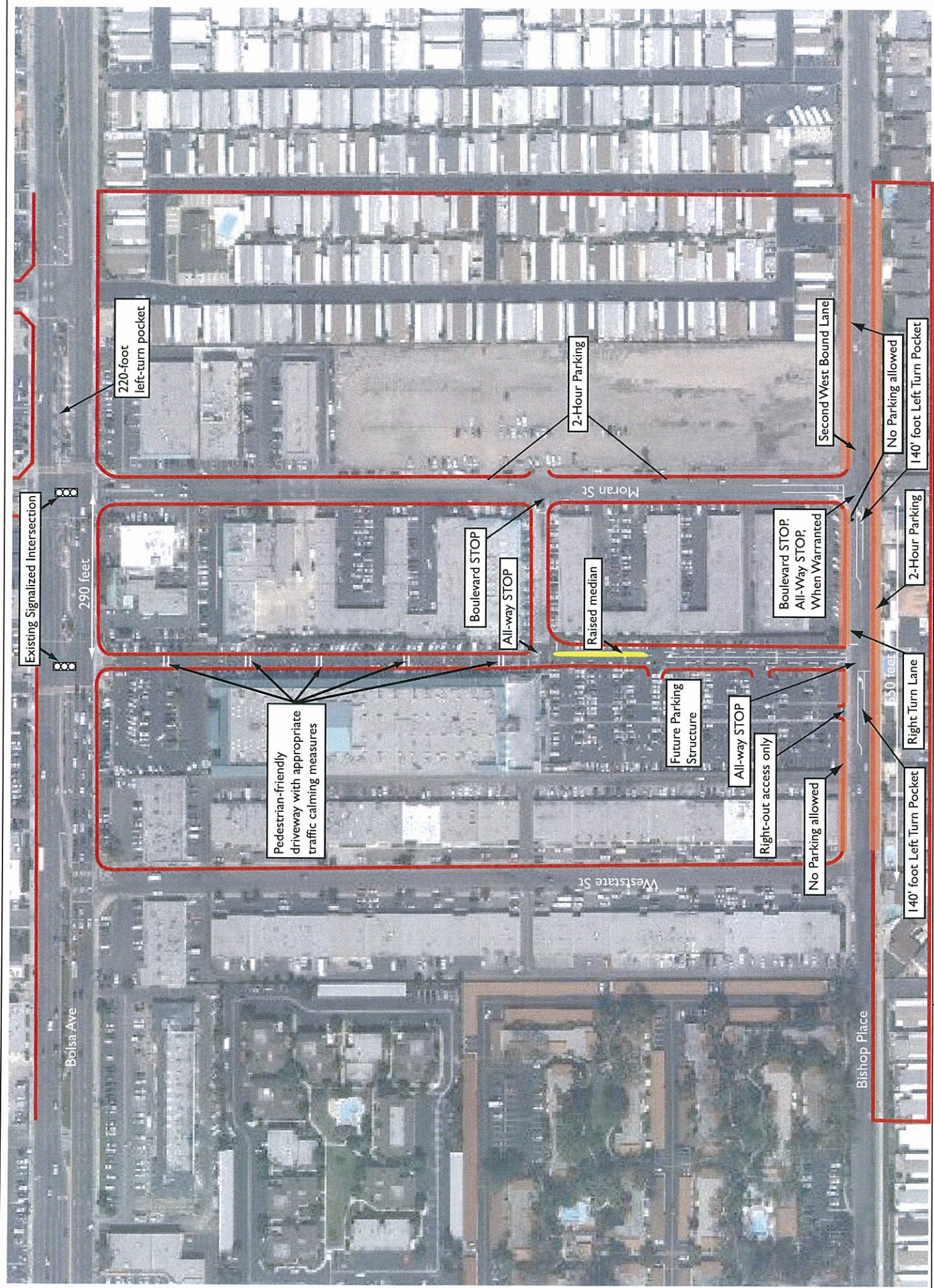
Figure I.4 identifies the recommended intersection improvements.

The report presents our complete findings and analysis for the Moran Street Comprehensive Plan Parking and Traffic study. Recommendations made as part of this study are intended to help the City to plan for the parking and traffic needs of the Comprehensive Plan area.



City of Westminster
 Little Saigon Traffic Impact and Parking Study
 Recommended Parking Space Allocation, Scenario 5
 Figure 1.2





2. Existing Land Use

2.1 Existing Land Use Inventory

Land use in the project area is primarily composed of various commercial uses, principally automobile service & installation, related light industrial uses, retail (principally the Asian Garden Mall), office, and restaurant. There is no residential use presently in the project area. There are currently no planned developments built to provide for a mixture of uses on a single parcel or planned development site. Currently there is about 269,220 square feet of commercial and light industrial land use in the Comprehensive Plan area. Existing land use in the Comprehensive Plan area is presented in Table 2.1 on the following page.

Many of the businesses in the project area especially along Moran appear to predate the advent of commercial activity in the area, including the Asian Garden Mall. They appear to be stand-alone buildings with on-site parking supplies that were planned for the lower parking demands of light industrial/auto service uses. The parking supply for these businesses is typically provided by a combination of on-street parking and off-street parking adjacent to the buildings. The combination of parking is adequate for the current weekday use, but the supply would not be adequate if the buildings were converted to an entirely retail use and the City's existing parking standards for commercial uses were applied.

Many of the various commercial tenants in the Comprehensive Plan area share parking with other nearby commercial uses within their blocks. The parking supply for these blocks was planned or intended to meet the demands of the light industrial/automobile service type businesses currently occupying most of the square footage. The overall existing parking supply is provided at the rate of about 3.3 off-street spaces per 1,000 square feet.

Observation and the results of the parking occupancy survey revealed that on-street parking is often fully used by patrons of the various businesses in the vicinity. Also, much of the existing parking supply is non-standard in that spaces have been marked that do not conform to City code for location, size, or stall design (i.e. blocking doors and encroaching on City property).

For the purpose of this study, subareas and block groups have been defined to study land use, parking conditions, and traffic impacts in the Comprehensive Plan area. These subareas and block groups correspond to the areas identified in the Moran Street Strategic Framework & Priorities Workbook that was prepared in 2008 so that the information can be easily compared and referenced. The subareas and block groups are shown in Figure 2.2.

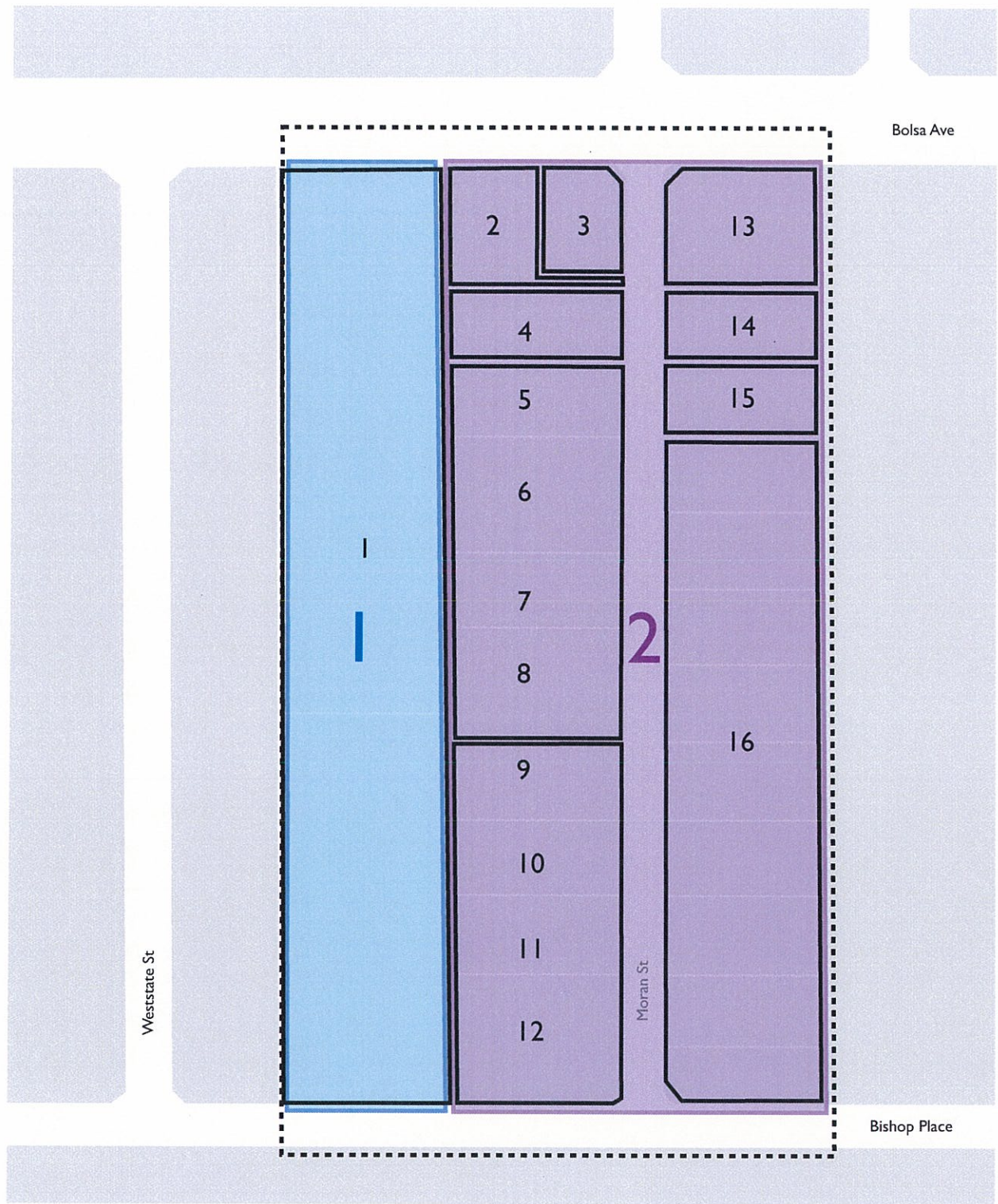
Table 2.1 – Existing Land Use

| Zone | Block | Total SF | Land Use | | | | | | |
|-------|-----------------|---------------------|----------|------------|---------|--------|----------------|-------------|---------|
| | | | Retail | Restaurant | Grocery | Studio | Medical Office | Auto Repair | Mall |
| 1 | 1 | 135,680 | | | | | | | 135,680 |
| 2 | 2 | 5,000 | 5,000 | | | | | | |
| | 3 | 4,800 | 2,400 | 1,200 | 1,200 | | | | |
| | 4 | 9,500 | 7,600 | 1,900 | | | | | |
| | 5 | 17,500 ¹ | | | | | | | |
| | 6 | 15,350 | | | | | | 15,350 | |
| | 7 | 11,000 | | | | | | 11,000 | |
| | 8 | 15,390 | 15,390 | | | | | | |
| | 9 | 10,700 | | | | | | 10,700 | |
| | 10 | 10,700 | | | | | | 10,700 | |
| | 11 | 10,700 | | | | | | 10,700 | |
| | 12 | 13,680 | 13,680 | | | | | | |
| | 13 | 11,520 | 8,640 | | | | 2,880 | | |
| | 14 | 11,200 | 11,200 | | | | | | |
| | 15 ² | 4,000 | 4,000 | | | | | | |
| | 16 ³ | - | - | - | - | - | - | - | - |
| Total | | 269,220 | 67,910 | 3,100 | 1,200 | 0 | 2,880 | 58,450 | 135,680 |

Note 1: Fire Station (non-commercial) use; Parking not available for public use; not included in commercial square-footage ttl.

Note 2: Total building sf 8,000; 4,000 sf occupied at time of survey.

Note 3: Block 16 under construction at time of survey



LEGEND

- Project Area Boundary
- 1 Asian Garden Subarea
- 2 Moran Subarea
- # Block Zones

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2.2 Existing City Parking Codes

The City of Westminster's parking codes, ordinances and regulations are currently in effect in the project area. This section presents a summary of these parking codes and ordinances. The City's parking code requirements for off-street parking that would apply to land uses in the Comprehensive Plan area are presented in Table 2.2 below.

Table 2.2 – Existing City Parking Codes

| Land Use | Spaces/Floor Area | Spaces/Dwelling Unit |
|----------------------------|---|---|
| Retail | 4 Spaces/1000 sf | N/A |
| Office | 5 sp/1000 sf (largest floor), 2 sp/1000 (other floors) | N/A |
| Restaurant | 10 Spaces+10 sp/1000 sf (stand-alone), or 10 sp/1000 sf (shopping center) | N/A |
| Residential | N/A | 1.5 Spaces/One Bedroom Unit, 2 Spaces/Two Bedroom Unit, (including .25 visitor sp/unit) |
| Medical-Dental Office | 5 Spaces/1000 sf | N/A |
| Industrial & Manufacturing | 2.5 Spaces/1000 sf | N/A |
| Warehouse & Storage | 1 Space/1000 sf | N/A |
| Hotel | N/A | 2 Spaces, plus 1 Space/each sleeping or living unit |

3. Parking Study Methodology

3.1 *Parking Demand Rates*

Parking demand rates were derived by conducting parking occupancy surveys on a weekend and a weekday to determine the accumulation and maximum extent of parking demand and utilization throughout the day. Parking occupancy counts were conducted hourly from 8 AM to 9 PM for each off-street and on-street parking area.

The parking occupancy data and existing land use data was used to derive parking demand rates by block and for the project area as a whole. These rates are based on occupied parking spaces per 1,000 square feet of building area for weekday and weekend conditions. The parking surveys showed that weekend parking demand is currently about 3.7 spaces per 1000 square feet of retail and restaurant spaces combined.

Expected future retail and restaurant parking demand is based on this parking demand rate established through the existing parking demand survey and future building square feet in the project area. The future parking demand forecast utilizes the expected demand rate plus a 15% turnover factor. This results in a suggested retail plus restaurant parking demand rate of 5 spaces per 1000 square feet for weekends. This is applicable to all parts of the Comprehensive Plan area where there will be an allowable 20% restaurant and 80% retail mix (blocks 1-7).

Because the survey could not separate the retail and restaurant parking demand on weekdays from the office and service/commercial demand, the weekday parking demand rate is based on the weekend rate adjusted by the weekday/weekend driveway count ratio at the Asian Garden Mall driveway. This results in a weekday retail/restaurant parking demand rate of about 60% of the weekend rate, or 3 spaces per 1,000 square feet.

Restaurant parking demand is assumed to be met by the recommended retail rate (5 spaces/1,000 square feet on weekends, 3 spaces/1,000 square feet on weekdays) in areas with up to 20% restaurants. These rates were applied throughout the project area for Scenario 6, which shares parking in a manner similar to that of a regional mall, and for individual sites wherever the retail/restaurant land use split is up to 20% restaurant for Scenario 5.

For areas where the land use forecast specifies a 40% restaurant and 60% retail land use mix (Blocks 8-21, fronting Moran Street), the parking demand rate for restaurant use under Scenario 5 is greater due to the reduced shared use potential and greater need to provide on-site parking in these areas. A parking demand rate of 10 spaces/1000 square feet on weekends and 6 spaces/1,000 square feet on weekdays was therefore used for restaurant spaces on blocks fronting Moran Street under Scenario 5.

The weekend parking demand rates for office were derived from the City code (5 spaces/1000 square feet), discounted by the observed weekend office occupancy rate in the project vicinity (about 70%).

This results in a weekend rate of 3.5 spaces/1000 square feet for office, which is consistent with the rate in the ITE *Parking Generation* report, published by the Institute of Transportation Engineers.

Parking demand rates for the residential land use were derived from the Comprehensive Plan workbook (1.5 spaces/1 bedroom unit and 2.0 spaces/2 bedroom unit). These rates include 0.25 spaces/unit for visitor parking. This is consistent with the City code.

3.2 *Parking Demand Forecast*

The parking demand rates derived for each land use were then applied to the respective Comprehensive Plan square footages for each block to obtain a baseline, or “unshared” future parking demand for each block group. Shared parking methodology was then applied to the “unshared” or “base” parking demand to obtain final forecasts of parking demand.

Shared Parking, published by the Urban Land Institute, reports on hourly parking accumulation by percentage of peak hour parking demand. *Shared Parking* includes restaurant, retail, residential, and office uses that generally apply to the Comprehensive Plan area. Other uses which may be specific to the project area can generally be grouped into one of these categories based either on the observed on-street parking demand pattern adjacent to the specific land use, or known hours of operation.

Shared parking theory recognizes that land use categories have parking demand peaks that occur at different times. It is therefore possible for these uses to share parking supply that is less than the sum of the individual parking code requirements. A project may have many land uses with different parking requirements by time of day and by day of the week. In these cases the net parking requirement for the site for each hour of the day is calculated by utilizing the peak requirement for each component use and adjusting the result based upon the proportion of peak parking activity occurring per hour.

The shared parking analysis is used to determine net parking demand during various hours of the day in which parking demand for a certain land use is high while another land use parking demand is low. This type of analysis shows that a fixed amount of parking spaces may be shared by more than one land use during different times of the day. The peak parking demand rate for each use applies to the hour when parking demand for that use is at 100%. Parking at other times is often less for that use. Because the various land use categories have parking demand peaks that occur at different times, it is possible for these uses to share parking supply that is less than the sum of the individual parking code requirements.

For Scenario 5, where parking is to be provided within each block group, the Urban Land Institute (ULI) shared parking methodology was then applied to the “unshared” or “base” parking demand for each block group to obtain final forecasts of parking demand for each block group. Parking is not shared within the entire Comprehensive Plan area as a whole under Scenario 5, only within each block group.

Under Scenario 6, sharing of parking was assumed throughout the Comprehensive Plan area, so that the shared parking methodology was applied to the “unshared” or “base” parking demand for each block group for the entire Comprehensive Plan area as a whole in order to obtain final forecasts of parking

demand for the Comprehensive Plan area and each block group.

It should be noted that only the visitor component of residential parking is shared with other uses under either Scenario 5 or Scenario 6. This is because residents normally demand unshared or secured parking in mixed-use developments. This amounts to 0.25 parking spaces per residential unit. The remainder of residential parking (the component intended as resident spaces) does not share with other uses.

3.3 Parking Allocation

A parking allocation analysis is used to identify the block-by-block site parking requirements of Scenario 5 and the net off-site parking requirement for Scenario 6, based on the expected parking demand. The parking allocation analysis distributes the expected parking space demands to the various block groups, providing several feasible alternatives for meeting the large off-site parking requirements of Scenario 6. Under both Scenario 5 and Scenario 6 the residential parking demand is assumed to be satisfied within the block group where it is generated (it is “self-parked”). This is because residents normally demand unshared, assigned, or secured parking within their own building complex or block in mixed-use developments.

Commercial parking demand in Scenario 5 is self-parked within the block groups where it is generated. For the purposes of planning parking structure capacity, this results in a considerably smaller parking structure intended primarily for use by Asian Garden Mall patrons. Patrons of other commercial businesses generally would park in the blocks or parcels where those businesses are located.

Under Scenario 6, commercial parking demand is allocated to one or more parking structures, surface lots, or shared parking areas. Residential uses are self-parked within their own respective block groups. The allocation of commercial parking can be done in any number of ways, however this study reviews potential parking allocation plans for Scenario 6.

4. Existing Parking Conditions

This section documents the existing parking conditions in the project area on a block-by-block basis, including the existing on-street parking and off-street parking supply and parking occupancy. The block-by-block analysis provides a breakdown on current parking conditions in specific parts of the project area. The analysis is also used to determine the current demand parking rate (spaces/square feet) in the project area.

4.1 Parking Supply

KOA Corporation conducted an inventory of the available parking spaces along Moran Street, Bishop Place, and parking lots within the project area. The inventory of available parking was done on a lot-by-lot and curb-by-curb basis. Table 4.1 summarizes the available parking supply of legally marked spaces by block for all lots and streets in the project area.

Table 4.1 – Existing Parking Supply Inventory

| Zone | Block # | Description | Off-Street Parking Spaces | On-Street Parking Spaces | Total Parking Spaces |
|---|---------------------|---------------------------------|---------------------------|--------------------------|----------------------|
| 1 | 1 | Between Weststate St & Moran St | 498 | 4 | 502 |
| 2 | 2 | Bolsa Avenue South Side | 20 | 0 | 20 |
| | 3 | Moran Street North | 19 | 0 | 19 |
| | 4 | Moran Street North | 24 | 0 | 24 |
| | 5 | Moran Street North | 0 | 0 | 0 |
| | 6 | Moran Street North | 39 | 0 | 39 |
| | 7 | Moran Street North | 24 | 0 | 24 |
| | 8 | Moran Street North | 51 | 0 | 51 |
| | 9 & 10 ¹ | Moran Street South | 43 | 0 | 43 |
| | 11 | Moran Street South | 23 | 0 | 23 |
| | 12 | Moran Street South | 40 | 7 | 47 |
| | 13 | Moran Street North | 42 | 0 | 42 |
| | 14 | Moran Street North | 25 | 0 | 25 |
| | 15 | Moran Street North | 32 | 0 | 32 |
| | 16 | Moran Street South | 567 ² | 37 | 603 |
| Bishop Place, south side & north side east of Moran St. | | | N/A | 68 | 54 |
| Bishop Place, north side, E & W of Weststate Street | | | 0 | 10 | 10 |
| Total | | | 1,447 | 126 | 1,573 |

Note 1: Pooled parking

Note 2: Recently constructed – not included in parking demand calculations

It should be noted that the on-street parking supply is about 8% of the total supply. Parking lots generally provide most of the available parking in the project area. Some of the off-street parking supply is “pooled”, in that more than one block is sharing the same parking area. This is the case for blocks 9 and 10.

Figure 4.1 shows the parking supply inventory by street and by lot for the project area. Off-Street and on-street parking inventory by space type is provided in Appendix A of this report.

The overall parking supply for the project area is provided at a rate of about 3.3 spaces per 1,000 square feet (sf) of floor area, based on the retail/commercial square footage total of 269,220 sf and the off-street parking supply of 880 spaces (this calculation does not include Saigon Villas parking demand or supply (567 spaces), which would increase the total to 1,447 spaces). This amount is lower than the supply of parking typically required on private property sites for office and retail uses in many newer suburban communities, where most commercial uses are required to provide 4 stalls per 1,000 square feet and restaurants are required to provide 10 stalls per 1,000 square feet.

4.2 Parking Demand

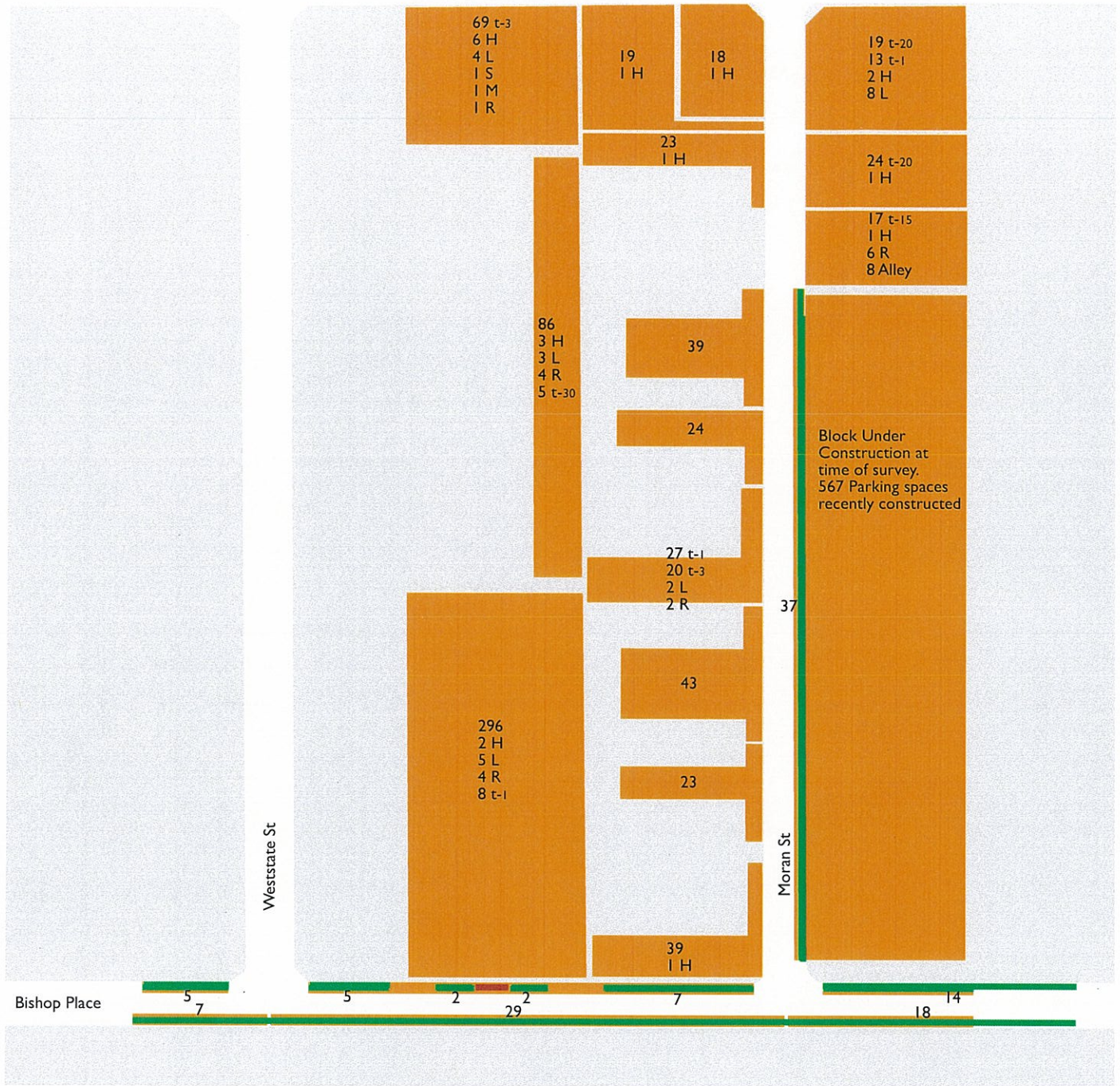
Parking demand counts were taken to determine the maximum weekday and weekend parking occupancy rates for each parking lot and on-street parking area. The peak parking demand counts are used to determine the peak parking occupancy rate of each off-street and on-street area rate in terms of percent of parking spaces occupied by vehicles. This occupancy rate is defined as the number of vehicles in the lot or along the curb divided by the number of parking spaces, and is expressed as a percentage, i.e. 50%.

Each off-street and on-street parking area in the project area was surveyed on a weekday and on a Saturday to determine the accumulation and maximum extent of parking demand and utilization throughout the day. Parking occupancy counts were conducted hourly from 8 AM to 9 PM for each off-street and on-street parking area. Figure 4.2 illustrates overall project area parking demand by hour based on the weekday and weekend occupancy counts. As shown in Figure 4.2, peak parking demand occurs at about 12 PM on weekdays, when about 85% of all parking spaces in the project area are occupied. The peak parking demand on weekends occurs at about 12 PM, when about 93% of all parking spaces are occupied. Also, at this time many vehicles are parked in illegal parking spaces and on nearby street frontages. Further, many properties are closed to business at this time, but their parking lots are utilized.

4.2.1 Weekday Parking Demand

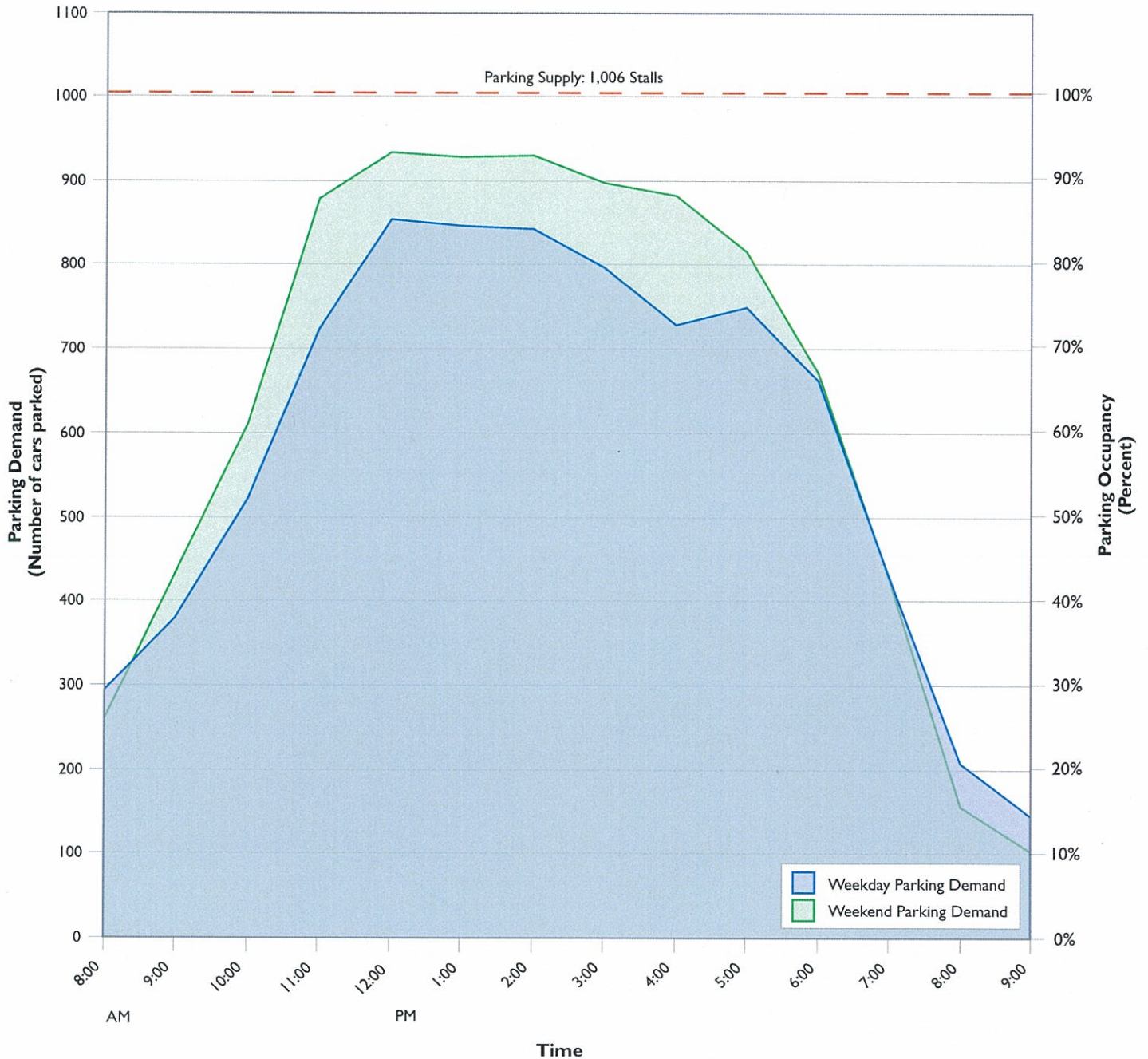
The study found that on-street parking in the project area as a whole is about 50% occupied in most areas on weekdays, but unoccupied spaces are generally remote to the core development areas. Parking occupancy in adjacent off-street lots is significantly higher (about 90%) than on-street parking occupancy. Weekday peak parking demand in all areas occurs at about 12 PM with an overall occupancy rate of about 85% of all available parking.

Bolsa Ave



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Existing Parking Demand



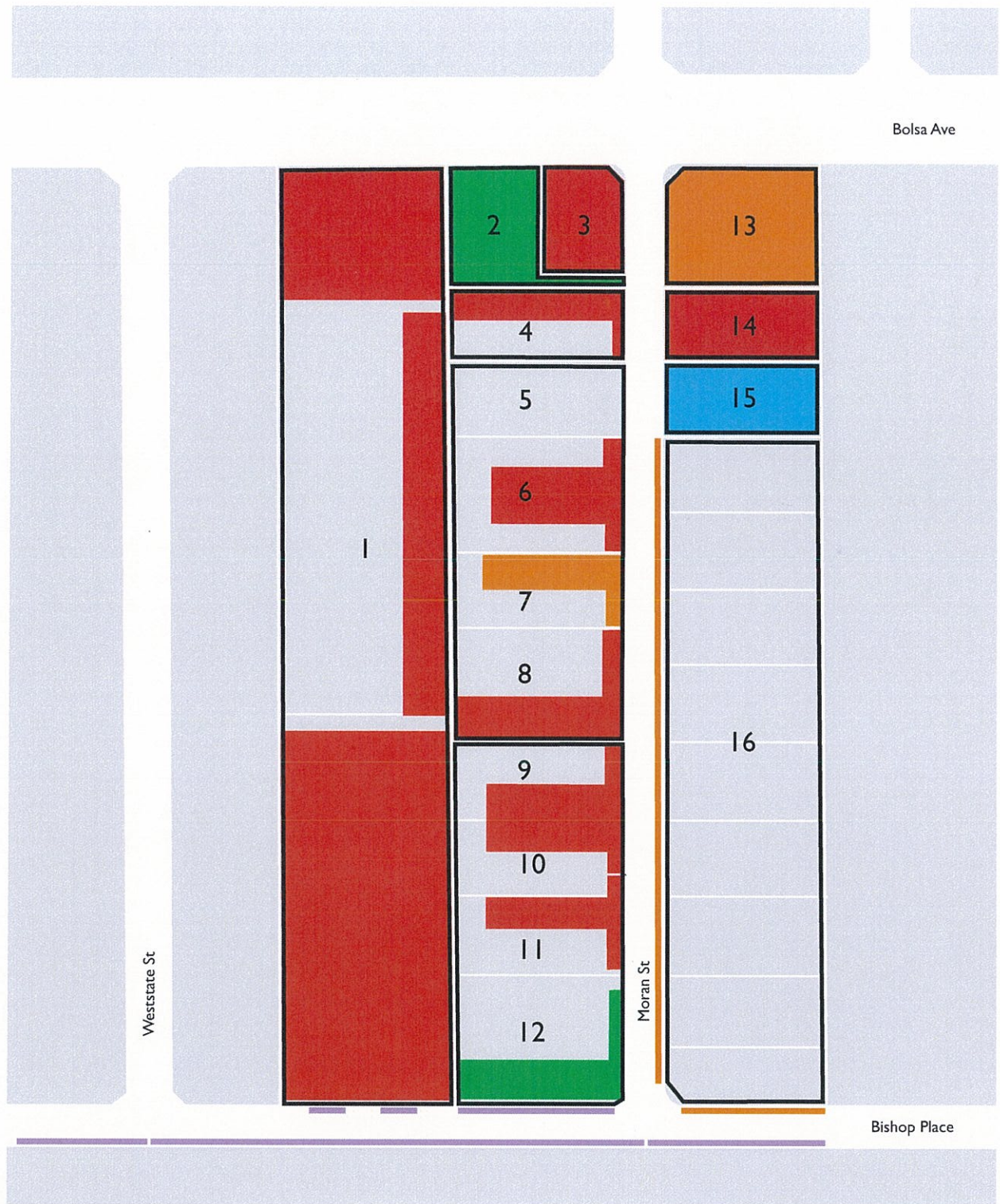
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Figure 4.3 indicates the maximum weekday parking demand by block during the time of peak parking demand for the project area (12 PM). As shown in the figure, weekday parking is intensely utilized in the project area as a whole, but it is not fully utilized in a few blocks even during the hours of peak parking demand. Data on parking demand by lot is provided in Appendix A of this report.

Table 4.2 summarizes the existing weekday on-street peak parking demand and surplus parking available by block. As shown in the table, occupancy rates of specific on-street areas vary significantly from about 14% along the north side of Bishop Place up to 65% along the south end of Moran Street near Bishop Place.

Table 4.2 – Existing On-Street Peak Parking Demand by Block, Weekday

| Zone | Block # | On-Street Parking Space Inventory | On-Street Peak Parking Demand | On-Street Parking Space Surplus | On-Street Parking Occupancy |
|--------------|---------|-----------------------------------|-------------------------------|---------------------------------|-----------------------------|
| 1 | 1 | 4 | 1 | 3 | 25% |
| 2 | 2 | 0 | 0 | 0 | N/A |
| | 3 | 0 | 0 | 0 | N/A |
| | 4 | 0 | 0 | 0 | N/A |
| | 5 | 0 | 0 | 0 | N/A |
| | 6 | 0 | 0 | 0 | N/A |
| | 7 | 0 | 0 | 0 | N/A |
| | 8 | 0 | 0 | 0 | N/A |
| | 9 & 10 | 0 | 0 | 0 | N/A |
| | 11 | 0 | 0 | 0 | N/A |
| | 12 | 7 | 1 | 6 | 14% |
| | 13 | 0 | 0 | 0 | N/A |
| | 14 | 0 | 0 | 0 | N/A |
| | 15 | 0 | 0 | 0 | N/A |
| | 16 | 37 | 24 | 13 | 65% |
| Bishop Place | | 68 | 24 | 44 | 35% |
| Total | | 116 | 50 | 66 | 43% |



PARKING LOT LEGEND

- 0%-40% Occupancy
- 40%-55% Occupancy
- 55%-70% Occupancy
- 70%-85% Occupancy
- 85% + Occupancy

ON-STREET PARKING LEGEND

- 0%-40% Occupancy
- 40%-55% Occupancy
- 55%-70% Occupancy
- 70%-85% Occupancy
- 85% + Occupancy



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Existing off-street weekday parking demand in the project area is summarized by block in Table 4.3. Weekday off-street parking demand is intensely utilized in most blocks along Moran Street, generally with occupancy rates of about 90% to 100% or more during peak periods. Occupancy rates of specific lots vary significantly, however parking occupancy in many blocks is over 90%, and sometimes exceeds 100% due to “illegal” parking in those blocks. Many vehicles are parked in unmarked spaces, blocking doorways, or encroaching on City property.

Table 4.3 – Existing Off-Street Peak Parking Demand by Block, Weekday

| Zone | Block # | Off-Street Parking Space Inventory | Off-Street Peak Parking Demand | Off-Street Parking Space Surplus ⁴ | Off-Street Parking Occupancy |
|--------------|---------------------|------------------------------------|--------------------------------|---|------------------------------|
| 1 | 1 | 498 | 448 | 50 | 90% |
| 2 | 2 | 20 | 11 | 9 | 55% |
| | 3 | 19 | 17 | 2 | 89% |
| | 4 | 24 | 23 | 1 | 96% |
| | 5 ¹ | 0 | 0 | 0 | N/A |
| | 6 | 39 | 46 | -7 | 118% |
| | 7 | 24 | 19 | 5 | 79% |
| | 8 | 51 | 49 | 2 | 96% |
| | 9 & 10 ² | 43 | 60 | -17 | 140% |
| | 11 | 23 | 26 | -3 | 113% |
| | 12 | 40 | 24 | 16 | 60% |
| | 13 | 42 | 35 | 7 | 83% |
| | 14 | 25 | 23 | 2 | 92% |
| | 15 | 32 | 16 | 16 | 50% |
| | 16 ³ | 567 | N/A | N/A | N/A |
| Total | | 880 | 797 | 83 | 91% |

Note 1: Fire Station

Note 2: Pooled parking

Note 3: Block under construction at time of survey, 567 off-street spaces recently constructed, not included in Total

Note 4: Negative “surplus” indicates illegally parked vehicles

Table 4.4 shows the total weekday parking demand in the project area by block (on-street parking plus off-street parking). Total weekday parking demand along Moran Street is significantly over-utilized in many blocks, often with occupancy rates of 89% to 140% in specific areas during peak demand times.

Table 4.4 – Total Peak Parking Demand by Block, Weekday

| Zone | Block # | Total Parking Inventory | Total Peak Parking Demand | Total Parking Space Surplus ⁴ | Total Parking Occupancy |
|--------------|---------------------|-------------------------|---------------------------|--|-------------------------|
| 1 | 1 | 502 | 449 | 53 | 89% |
| 2 | 2 | 20 | 11 | 9 | 55% |
| | 3 | 19 | 17 | 2 | 89% |
| | 4 | 24 | 23 | 1 | 96% |
| | 5 ¹ | 0 | 0 | 0 | N/A |
| | 6 | 39 | 46 | -7 | 118% |
| | 7 | 24 | 19 | 5 | 79% |
| | 8 | 51 | 49 | 2 | 96% |
| | 9 & 10 ² | 43 | 60 | -17 | 140% |
| | 11 | 23 | 26 | -3 | 113% |
| | 12 | 47 | 25 | 22 | 53% |
| | 13 | 42 | 35 | 7 | 83% |
| | 14 | 25 | 23 | 2 | 92% |
| | 15 | 32 | 16 | 16 | 50% |
| | 16 ³ | 37 | 24 | 13 | 65% |
| Bishop Place | | 68 | 24 | 44 | 35% |
| Total | | 996 | 847 | 149 | 85% |

Note 1: Fire Station

Note 2: Pooled parking

Note 3: Block under construction at time of survey, 567 off-street spaces + 37 on-street spaces recently constructed, off-street spaces not included in Total

Note 4: Negative "surplus" indicates illegally parked vehicles

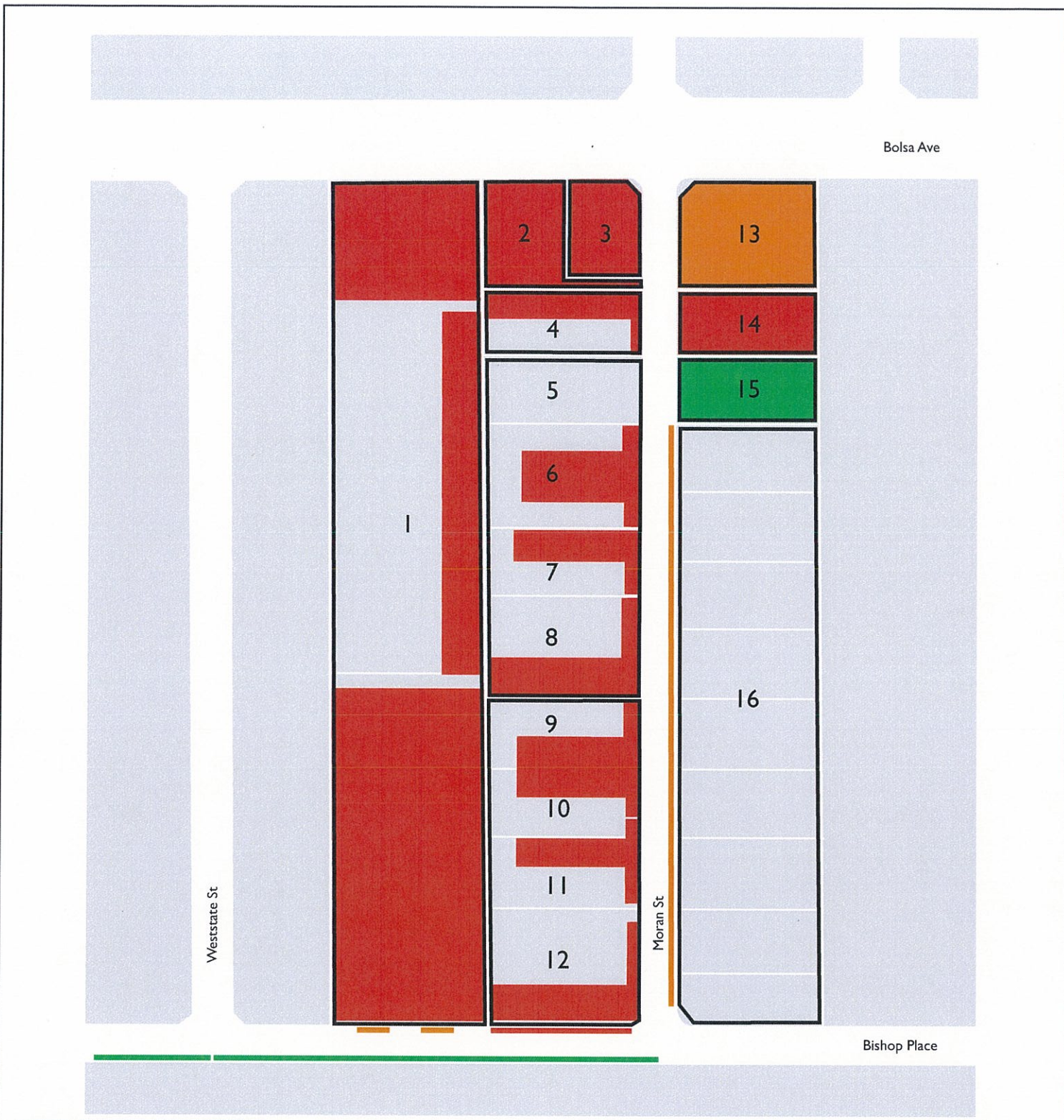
4.2.2 Weekend Parking Demand

Figure 4.4 indicates the maximum weekend parking demand for each block in the project area. The weekend parking occupancies are generally slightly higher than on weekdays, with a weekend average parking occupancy rate in the project area of about 93%. Weekend peak parking demand occurs at about 12 PM. Figure 4.5 indicates the maximum weekend peak parking demand by block.

Table 4.5 summarizes the existing weekend on-street peak parking demand by block. Weekend on-street parking demand along Moran Street and Bishop Place (south side) is often up to 100% of available capacity during the peak times.

Table 4.5 – Existing On-Street Peak Parking Demand by Block, Weekend

| Zone | Block # | On-Street Parking Space Inventory | On-Street Peak Parking Demand | Total Parking Space Surplus | On-Street Parking Occupancy |
|--------------|---------|-----------------------------------|-------------------------------|-----------------------------|-----------------------------|
| 1 | 1 | 4 | 4 | 0 | 100% |
| 2 | 2 | 0 | 0 | 0 | N/A |
| | 3 | 0 | 0 | 0 | N/A |
| | 4 | 0 | 0 | 0 | N/A |
| | 5 | 0 | 0 | 0 | N/A |
| | 6 | 0 | 0 | 0 | N/A |
| | 7 | 0 | 0 | 0 | N/A |
| | 8 | 0 | 0 | 0 | N/A |
| | 9 & 10 | 0 | 0 | 0 | N/A |
| | 11 | 0 | 0 | 0 | N/A |
| | 12 | 7 | 7 | 0 | 100% |
| | 13 | 0 | 0 | 0 | N/A |
| | 14 | 0 | 0 | 0 | N/A |
| | 15 | 0 | 0 | 0 | N/A |
| | 16 | 37 | 26 | 11 | 70% |
| Bishop Place | | 54 | 33 | 21 | 61% |
| Total | | 102 | 70 | 32 | 67% |



PARKING LOT LEGEND

- 0%-40% Occupancy
- 40%-55% Occupancy
- 55%-70% Occupancy
- 70%-85% Occupancy
- 85% + Occupancy

ON-STREET PARKING LEGEND

- 0%-40% Occupancy
- 40%-55% Occupancy
- 55%-70% Occupancy
- 70%-85% Occupancy
- 85% + Occupancy



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Existing off-street weekend parking demand along Moran Street is summarized by block in Table 4.6. Weekend off-street parking demand along Moran Street is intensely used in many blocks, generally with occupancy rates of 100% and higher during the peak times.

Table 4.6 – Existing Off-Street Peak Parking Demand by Block, Weekend

| Zone | Block # | Off-Street Parking Space Inventory | Off-Street Peak Parking Demand | Off-Street Parking Space Surplus ⁴ | Off-Street Parking Occupancy |
|--------------|---------------------|------------------------------------|--------------------------------|---|------------------------------|
| 1 | 1 | 498 | 491 | 7 | 99% |
| 2 | 2 | 20 | 16 | 4 | 80% |
| | 3 | 19 | 20 | -1 | 105% |
| | 4 | 24 | 25 | -1 | 104% |
| | 5 ¹ | 0 | 0 | 0 | N/A |
| | 6 | 39 | 47 | -8 | 121% |
| | 7 | 24 | 24 | 0 | 100% |
| | 8 | 51 | 49 | 2 | 96% |
| | 9 & 10 ² | 43 | 59 | -16 | 137% |
| | 11 | 23 | 22 | 1 | 96% |
| | 12 | 40 | 31 | 9 | 78% |
| | 13 | 42 | 28 | 14 | 67% |
| | 14 | 25 | 20 | 5 | 80% |
| | 15 | 32 | 20 | 12 | 63% |
| | 16 ³ | 567 | N/A | 567 | N/A |
| Total | | 880 | 852 | 28 | 97% |

Note 1: Fire Station

Note 2: Pooled parking

Note 3: This block was under construction at the time of the survey, 567 off-street spaces recently constructed, not included in Total

Note 4: Negative "surplus" indicates illegally parked vehicles

Table 4.7 shows the total weekend parking demand in the project area by block (on-street parking plus off-street parking). Weekend total parking demand in the project area is over capacity in many blocks, often with occupancy rates of 100% and higher during the peak times.

Table 4.7 – Total Peak Parking Demand by Block, Weekend

| Zone | Block # | Total Parking Inventory | Total Peak Parking Demand | Total Parking Space Surplus ⁴ | Total Parking Occupancy |
|-------------------|---------------------|-------------------------|---------------------------|--|-------------------------|
| 1 | 1 | 502 | 495 | 7 | 99% |
| 2 | 2 | 20 | 16 | 4 | 80% |
| | 3 | 19 | 20 | -1 | 105% |
| | 4 | 24 | 25 | -1 | 104% |
| | 5 ¹ | 0 | 0 | 0 | N/A |
| | 6 | 39 | 47 | -8 | 121% |
| | 7 | 24 | 24 | 0 | 100% |
| | 8 | 51 | 49 | 2 | 96% |
| | 9 & 10 ² | 43 | 59 | -16 | 137% |
| | 11 | 23 | 22 | 1 | 96% |
| | 12 | 47 | 38 | 9 | 81% |
| | 13 | 42 | 28 | 14 | 67% |
| | 14 | 25 | 20 | 5 | 80% |
| | 15 | 32 | 20 | 12 | 63% |
| | 16 ³ | 604 | 26 | 578 | 70% |
| Bishop Place side | | 68 | 45 | 27 | 66% |
| Total | | 996 | 934 | 629 | 60% |

Note 1: Fire Station

Note 2: Pooled parking

Note 3: This block was under construction at the time of the survey, 567 off-street spaces + 37 on-street spaces recently constructed, off-street spaces not included in Total

Note 4: Negative "surplus" indicates illegally parked vehicles

To summarize, the study found that existing parking demand in the Comprehensive Plan project area is over capacity in most parking areas during the weekend peak period. On-street parking is often 100% occupied in many areas on weekends. Parking occupancy in most off-street lots is over 100% on weekends, indicating that the existing parking demand is significantly higher than the available parking spaces on weekends. Additional parking demand information is presented in Appendix A.

4.3 Parking Demand Rates

Parking occupancy data was used to derive existing parking demand rates for the project area. These rates are based on occupied parking spaces per 1,000 square feet of building area for weekend conditions, as shown in Table 4.8 below. The weekday commercial parking demand rate is based on the weekend rate multiplied by a factor of 0.6. This factor was derived from weekend and weekday driveway counts at the Asian Garden Mall driveway.

Table 4.8 – Existing Parking Demand Rates (per 1,000 Sq, Ft)

| | Commercial Land Use | Commercial Peak Parking Occupancy | Commercial Parking Demand Rate | Commercial Parking Demand Rate w/Turnover |
|----------------------|--------------------------------|--|---|--|
| Weekend | 269,220 sf | 863 Spaces | 3.2 Sp/1,000 sf | 3.7 Sp/1,000 sf |
| Weekday ² | 269,220 sf | 520 Spaces ³ | 1.9 Sp/1,000 sf | 2.2 Sp/1,000 sf |

Note 1: Spaces per thousand square feet, excludes street parking along block 16 and along south side of Bishop Place.

Note 2: The weekday commercial parking demand rate is based on the weekend rate x a factor of 0.6. This factor was derived from weekend and weekday driveway counts at the Asian Garden Mall driveway.

Note 3: Estimate of commercial weekday parking occupancy. Total (commercial, office, other) occupancy was 847.

As shown in Table 4.8, the parking demand rate for commercial uses is 1.9 spaces/1,000 square feet on weekdays and 3.2 spaces/1,000 square feet on weekends. Allowing for the 15% turnover factor the resulting retail demand rate is 2.2 spaces/1,000 square feet for weekdays and 3.7 spaces/1,000 square feet for weekends.

The parking demand rates were applied to the respective Comprehensive Plan square footages for each block to obtain a baseline, or “unshared” parking demand for each block group. The Urban Land Institute (ULI) shared parking methodology was then applied to the “unshared” or “base” parking demand for each block group to obtain final forecasts of parking demand for each block group.

5. Project Alternatives

The Comprehensive Plan focuses on two alternative land use scenarios, “Scenario 5” and “Scenario 6”. Both scenarios provide for approximately 293,680 square feet of commercial/retail, restaurant, and office uses in the project area. The land use split is projected to be about 71,760 square feet of specialty retail space, 108,540 square feet of shopping center retail space, 33,180 square feet of high turnover restaurant, 41,790 square feet of dine-in restaurant, 38,400 square feet of office, 115 residential dwelling units, and a 120-room hotel with a 1,000 person capacity banquet room. These uses will be allocated to specific blocks and would likely occupy most or all of these parcels.

Although the specific commercial uses in the Comprehensive Plan are not known at this time, it is assumed that block 1 will follow an 80% retail and 20% restaurant mix, and blocks 2-15 will follow a 60% retail and 40% restaurant mix.

Both scenarios assume retail and restaurant uses on the first level of all buildings. Office uses will occupy the second level of some buildings, with residential uses above. Residential uses will occupy the second level and above for other buildings. A stand-alone hotel is also proposed, with a 1,000 person capacity banquet room. The Asian Garden Mall is assumed to have the same land use mix as currently exists (85% retail on the ground floor and 75% retail on the second floor).

Parking allocation for the two alternative scenarios would be significantly different, however. Under Scenario 5, most land uses will park themselves on their own sites. Under Scenario 6, most parking supply is concentrated in a few locations including one or more parking structures. Due to the need to provide on-site parking, the development types for Alternative 5 will require subterranean or rooftop parking to achieve planned density, while Alternative 6 will limit the need for on-site parking. These alternative scenarios will have significantly differing traffic impacts and parking needs. Specifics for the two scenarios are described below.

5.1 Scenario 5

Under Scenario 5, all residential uses will park themselves, i.e. parking for residents and visitors will be provided within each respective block group. Commercial uses will also park themselves within their own respective block groups.

Any parking structure constructed for the Comprehensive Plan area under Scenario 5 will be sized to serve only the Asian Garden Mall (AGM) and the hotel, and will not be expected to provide parking capacity for land uses for other blocks or parcels. To summarize, Scenario 5 provides that:

- Residential uses parks themselves on-site
- Commercial uses park themselves on-site
- Any parking structure will only accommodate the Asian Garden Mall and hotel parking demand
- Weekday hotel occupancy is assumed to be half of weekend occupancy

5.2 Scenario 6

Under Scenario 6, land uses and intensities will be the same as described for Scenario 5. The difference between the two scenarios is that under Scenario 6 most commercial parking will be provided in off-site parking areas that may include a larger AGM parking structure and/or surplus parking provided in Saigon Villas or other locations. Residential uses will park themselves within their own respective block groups. To summarize, Scenario 6 provides that:

- Residential uses park themselves (except for guest parking)
- Commercial uses (including Asian Garden Mall, the hotel and other commercial uses) park in one or more parking structures or other designated locations
- Parking areas will accommodate commercial parking demand from all areas in the Comprehensive Plan project area
- Weekday hotel parking demand is assumed to be half of weekend demand
- Perpendicular parking on the east side of the AGM access roadway will be removed

The following sections on future parking needs and parking allocation evaluate expected parking demand and parking space distribution for the two alternative scenarios.

6. Future Parking Needs Analysis

6.1 Future Land Use Projections

The Comprehensive Plan provides future land use projections for the Moran Street area for Scenarios 5 and 6. The Plan will permit approximately 293,680 square feet of commercial/retail, office and residential uses in the project area. It is projected that the land use split for this commercial development will be approximately 180,300 square feet of commercial/retail land use, 74,970 square feet of restaurant use, and 38,400 square feet of office use. In addition, up to 115 residential units and a 120-room hotel with banquet space is projected as of this writing. These uses are allocated to specific blocks and would likely occupy most or all of these parcels.

Although the specific commercial uses in the Comprehensive Plan are not known at this time, it is assumed that block 1 will follow an 80% retail and 20% restaurant mix, and blocks 2-15 will follow a 60% retail and 40% restaurant mix. Proposed land uses are summarized by block in Table 6.1.

Table 6.1 – Land Use Projection by Block

| Zone | Block | Hotel Rooms | Residential DU's | Office SF | Commercial SF |
|--------------|----------------|-------------|------------------|---------------|----------------|
| 1 | 1 | | | | 135,680 |
| | 2 | | | 16,000 | 16,000 |
| | 3 | | | | |
| | 4 ¹ | 120 | | | |
| | 5 | | 50 | | 30,000 |
| | 6 | | | | |
| | 7 | | | | |
| | 8 | | | | |
| | 9 | | 65 | | 40,000 |
| | 10 | | | | |
| | 11 | | | | |
| | 12 | | | | |
| | 13 | | | 14,400 | 14,400 |
| | 14 | | | | 11,200 |
| | 15 | | | 8,000 | 8,000 |
| Total | | 120 | 115 | 38,400 | 255,280 |

Note 1: No existing land use is associated with Block 4

6.2 Shared Parking Planning

The Moran Street Comprehensive Plan will include a diverse mix of commercial, retail, office, hotel, and residential land uses, all of which have their own unique parking demand patterns. The Asian Garden Mall will be the largest use, with many smaller retail, restaurant, and service businesses, hotel, and residential apartments and/or condominiums/townhouses. In many cases these diverse land uses can share parking facilities where the total parking required between them will be less than what would be required for the individual uses taken together.

A shared parking analysis can be used to determine the net parking demand during various hours of the day when multiple land uses share the same parking facility. Ideally, parking demand for one land use will be high while another land use parking demand is low. A shared parking analysis can show that a fixed number of parking spaces can be efficiently shared by more than one land use during different times of the day.

Shared parking can be used to fine tune parking supply for the various existing and proposed land uses in the Comprehensive Plan area. It is particularly valuable for estimating parking needs for the new developments that may share parking internally or with existing uses such as the Asian Garden Mall. Shared parking takes advantage of compatible time-of-day characteristics of parking demand. For example, residential and commercial parking have very different and compatible characteristics. Residential parking demands are low when commercial parking demands are highest, so plans for these uses to share parking can be valuable to maximize use of scarce parking resources.

For shared parking to be successful there must be a mix of several land use types with compatible parking demands within close proximity to a common parking area. The parking facilities to be shared should be within a reasonable walking distance of each land use. Generally 300 feet is considered the maximum desired distance to walk to/from a retail or commercial business to parking for that business. Planning for shared parking should therefore assume the parking supply within about 300 feet of the parking generator. This can mean either a public lot or structure within one block of the generator, lightly-used on-street parking areas, or a mixed-use development with integrated parking or shared use with a nearby lot or structure.

Shared parking will not work if parking areas are not sharable. If parking spaces are assigned or reserved, they cannot be used by alternate users at other times. This limits the potential for sharing of secured or assigned residential parking.

The Comprehensive Plan area will provide many land uses with different parking requirements by time of day and by day of the week. The new proposed projects will have multiple land uses on the same site, or proposed projects near existing land uses where shared parking may be a practical option. In these cases the net parking requirement for the site for each hour of the day should be calculated by utilizing the recommended requirement for each component use and adjusting the result based upon the proportion of peak parking activity occurring for each hour.

For a mixed residential/retail project, parking demand for the residential component use normally decreases during the day when most people are not at home. Residential parking accumulation falls to about 60% of peak demand from 10 am to 2 pm. During this same time period commercial uses, such as retail, professional office, and café restaurants experience their peak demand. Shared residential/commercial parking is therefore ideal for a mixed-use development. If the proposed shared use is commercial or office with residential or restaurant, there would also be significant potential for shared use of parking supply. It should be noted however that as most of the parking supply in the area will likely be privately owned, shared use may require reciprocal agreements with the owners of these properties.

For any restaurant use proposed for the Comprehensive Plan area, the type of restaurant is a consideration. Full service sit-down restaurants experience their peak parking demand during the evening hours, while café-style restaurants and fast-food restaurants typically experience their peak demand during the lunchtime period from nearby employers, local residents, and “spillover” patronage from nearby businesses. Any proposal for new café-style or fast-food restaurants along Moran Street, the Asian Garden Mall Drive Aisle, or the internal project streets should therefore assume a parking demand pattern similar to commercial or retail use, with a mid-day peak.

Table 6.2 shows the weekday percentage accumulation of parking demand for the types of land uses proposed for the Comprehensive Plan area (hotel, residential, retail/commercial, restaurant, and office). These rates are used for the shared parking tables in this section. Table 6.2 shows that demand peaks at 11 PM to 12 AM for hotel uses, 9 PM to 6 AM for residential uses, 1 PM for retail/commercial uses, 7 PM to 9 PM for restaurant uses, and from 10 AM to 3 PM for office uses.

Table 6.3 shows the weekend percentage accumulation for on-street and off-street parking demand of each land use component. As shown in Table 6.3, the four major land use categories have parking demand peaks that occur at different times. It is therefore possible for these uses to share parking supply that is less than the sum of the individual parking code requirements.

6.3 Shared Parking Accumulation, Scenario 5

There are shared parking opportunities in the Comprehensive Plan area. Moran Street is proposed to have a mix of residential and retail/commercial/restaurant/office parking requirements. Although the specific uses in each area are subject to change, the shared use parking analysis for the project area provides an evaluation of how a shared use arrangement can reduce the overall demand for parking spaces in the Comprehensive Plan area. It should be noted that all of the commercial uses are included in the shared use calculations, however, only the unreserved residential visitor spaces (0.25 space/unit) share parking. The residential reserved spaces cannot be shared.

Table 6.2 – Representative Weekday Hourly Parking Accumulation

| Hour of Day | Hotel | Residential Reserved ¹ | Residential Guest | Commercial ² | Restaurant | Office |
|-----------------------|-------|-----------------------------------|-------------------|-------------------------|------------|--------|
| 6:00 AM | 95% | 100% | - | 1% | 0% | 3% |
| 7:00 AM | 95% | 100% | 10% | 5% | 0% | 30% |
| 8:00 AM | 90% | 100% | 20% | 15% | 0% | 75% |
| 9:00 AM | 80% | 100% | 20% | 35% | 0% | 95% |
| 10:00 AM | 70% | 100% | 20% | 65% | 15% | 100% |
| 11:00 AM | 70% | 100% | 20% | 85% | 40% | 100% |
| 12:00 noon | 65% | 100% | 20% | 95% | 75% | 90% |
| 1:00 PM | 65% | 100% | 20% | 100% | 75% | 90% |
| 2:00 PM | 70% | 100% | 20% | 95% | 65% | 100% |
| 3:00 PM | 70% | 100% | 20% | 90% | 40% | 100% |
| 4:00 PM | 75% | 100% | 20% | 90% | 50% | 90% |
| 5:00 PM | 80% | 100% | 40% | 95% | 75% | 50% |
| 6:00 PM | 85% | 100% | 60% | 95% | 95% | 25% |
| 7:00 PM | 85% | 100% | 100% | 95% | 100% | 10% |
| 8:00 PM | 90% | 100% | 100% | 80% | 100% | 7% |
| 9:00 PM | 95% | 100% | 100% | 50% | 100% | 3% |
| 10:00 PM | 95% | 100% | 100% | 30% | 95% | 1% |
| 11:00 PM | 100% | 100% | 80% | 10% | 75% | 0% |
| 12:00 Midnight | 100% | 100% | 50% | 0% | 25% | 0% |

Note 1: Resident Demand (Includes Single-Family Residence, Condominium/Townhouse, and Apartments)

Note 2: Includes Retail, Service Commercial, Commercial

Source: *Shared Parking, Second Edition*, The Urban Land Institute 2005

Table 6.3 – Representative Weekend Hourly Parking Accumulation

| Hour of Day | Hotel | Residential Reserved ¹ | Residential Guest | Commercial ² | Restaurant | Office |
|----------------|-------|-----------------------------------|-------------------|-------------------------|------------|--------|
| 6:00 AM | 95% | 100% | - | 1% | 0% | 0% |
| 7:00 AM | 95% | 100% | 20% | 5% | 0% | 20% |
| 8:00 AM | 90% | 100% | 20% | 10% | 0% | 60% |
| 9:00 AM | 80% | 100% | 20% | 30% | 0% | 80% |
| 10:00 AM | 70% | 100% | 20% | 50% | 0% | 90% |
| 11:00 AM | 70% | 100% | 20% | 65% | 15% | 100% |
| 12:00 noon | 65% | 100% | 20% | 80% | 50% | 90% |
| 1:00 PM | 65% | 100% | 20% | 90% | 55% | 80% |
| 2:00 PM | 70% | 100% | 20% | 100% | 45% | 60% |
| 3:00 PM | 70% | 100% | 20% | 100% | 45% | 40% |
| 4:00 PM | 75% | 100% | 20% | 95% | 45% | 20% |
| 5:00 PM | 80% | 100% | 40% | 90% | 60% | 10% |
| 6:00 PM | 85% | 100% | 60% | 80% | 90% | 5% |
| 7:00 PM | 85% | 100% | 100% | 75% | 95% | 0% |
| 8:00 PM | 90% | 100% | 100% | 65% | 100% | 0% |
| 9:00 PM | 95% | 100% | 100% | 50% | 90% | 0% |
| 10:00 PM | 95% | 100% | 100% | 35% | 90% | 0% |
| 11:00 PM | 100% | 100% | 80% | 15% | 90% | 0% |
| 12:00 Midnight | 100% | 100% | 50% | 0% | 50% | 0% |

Note 1: Resident Demand (Includes Single-Family Residence, Condominium/Townhouse, and Apartments)

Note 2: Includes Retail, Service Commercial, Commercial

Source: *Shared Parking, Second Edition*, The Urban Land Institute 2005

A shared use analysis for Scenario 5 is shown in Tables 6.4 and 6.5 for weekday and weekend parking demand, respectively, using the ULI *Shared Parking* tables (Tables 6.2 and 6.3). As shown in Table 6.4, although the unshared parking requirement for this area is 1,364 spaces on weekdays, the shared use analysis shows that the maximum parking demand for the area is actually just 1,209 spaces at 1 PM.

Table 6.4 – Scenario 5 Weekday Shared Parking Accumulation Analysis

| Hour of Day | Hotel ¹ | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total Demand |
|-----------------------------|--------------------|----------------------|-------------------|------------|------------|--------|--------------|
| Unshared Requirement | 61 | 173 | 29 | 541 | 368 | 192 | 1,364 |
| 6:00 am | 58 | 173 | 0 | 5 | 0 | 5 | 241 |
| 7:00 am | 58 | 173 | 3 | 27 | 0 | 58 | 319 |
| 8:00 am | 55 | 173 | 6 | 81 | 0 | 144 | 459 |
| 9:00 am | 49 | 173 | 6 | 189 | 0 | 182 | 599 |
| 10:00 am | 43 | 173 | 6 | 352 | 55 | 192 | 821 |
| 11:00 am | 43 | 173 | 6 | 459 | 148 | 192 | 1,021 |
| 12:00 noon | 40 | 173 | 6 | 513 | 276 | 173 | 1,181 |
| 1:00 pm | 40 | 173 | 6 | 541 | 276 | 173 | 1,209 |
| 2:00 pm | 43 | 173 | 6 | 513 | 238 | 192 | 1,165 |
| 3:00 pm | 43 | 173 | 6 | 487 | 148 | 192 | 1,049 |
| 4:00 pm | 46 | 173 | 6 | 487 | 184 | 173 | 1,069 |
| 5:00 pm | 49 | 173 | 11 | 513 | 276 | 96 | 1,118 |
| 6:00 pm | 52 | 173 | 18 | 513 | 349 | 48 | 1,153 |
| 7:00 pm | 52 | 173 | 29 | 513 | 368 | 19 | 1,154 |
| 8:00 pm | 55 | 173 | 29 | 434 | 368 | 14 | 1,073 |
| 9:00 pm | 58 | 173 | 29 | 270 | 368 | 5 | 903 |
| 10:00 pm | 58 | 173 | 29 | 163 | 349 | 2 | 774 |
| 11:00 pm | 61 | 173 | 23 | 54 | 276 | 0 | 587 |
| 12:00 Midnight | 61 | 173 | 15 | 0 | 93 | 0 | 342 |

Note 1: Weekday hotel parking demand is assumed to be half of weekend demand

On weekends, the unshared parking demand for the area is 1,974 spaces. However the shared parking accumulation analysis shows that the maximum parking demand for the area is reduced to 1,576 spaces and occurs at 6 PM on weekends, as shown in Table 6.5.

The summaries indicate the actual parking demand expected for each subarea, assuming shared parking arrangements are made. As shared-uses must be within a reasonable walking distance of each other (generally about 300 feet or a maximum 5-minute walk), the two subareas listed do not share parking with each other under Scenario 5, only within their respective areas.

Table 6.5 – Scenario 5 Weekend Shared Parking Accumulation Analysis

| Hour of Day | Hotel ¹ | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total Demand |
|-----------------------------|--------------------|----------------------|-------------------|------------|------------|--------|--------------|
| Unshared Requirement | 122 | 173 | 29 | 902 | 614 | 134 | 1,974 |
| 6:00 am | 116 | 173 | 0 | 7 | 0 | 0 | 296 |
| 7:00 am | 116 | 173 | 6 | 45 | 0 | 27 | 367 |
| 8:00 am | 110 | 173 | 6 | 89 | 0 | 81 | 459 |
| 9:00 am | 98 | 173 | 6 | 270 | 0 | 107 | 654 |
| 10:00 am | 85 | 173 | 6 | 451 | 0 | 120 | 835 |
| 11:00 am | 85 | 173 | 6 | 587 | 93 | 134 | 1,078 |
| 12:00 noon | 79 | 173 | 6 | 721 | 307 | 120 | 1,406 |
| 1:00 pm | 79 | 173 | 6 | 811 | 339 | 107 | 1,515 |
| 2:00 pm | 85 | 173 | 6 | 902 | 276 | 81 | 1,523 |
| 3:00 pm | 85 | 173 | 6 | 902 | 276 | 53 | 1,495 |
| 4:00 pm | 92 | 173 | 6 | 858 | 276 | 27 | 1,432 |
| 5:00 pm | 98 | 173 | 11 | 811 | 368 | 14 | 1,475 |
| 6:00 pm | 104 | 173 | 18 | 721 | 553 | 7 | 1,576 |
| 7:00 pm | 104 | 173 | 29 | 676 | 584 | 0 | 1,566 |
| 8:00 pm | 110 | 173 | 29 | 587 | 615 | 0 | 1,514 |
| 9:00 pm | 116 | 173 | 29 | 451 | 553 | 0 | 1,322 |
| 10:00 pm | 116 | 173 | 29 | 316 | 553 | 0 | 1,187 |
| 11:00 pm | 122 | 173 | 23 | 135 | 553 | 0 | 1,006 |
| 12:00 Midnight | 122 | 173 | 15 | 0 | 307 | 0 | 617 |

Note 1: Weekday hotel parking demand is assumed to be half of weekend demand

Tables 6.6 and 6.7 provide the shared parking accumulation forecast for the two subareas within the Comprehensive Plan area for weekday and weekend conditions, respectively, under Scenario 5. In conclusion, shared parking for Scenario 5 generally results in a reduction in parking accumulation by about 11% on weekdays and 20% on weekends.

Table 6.6 – Scenario 5 Weekday Total Shared Parking Space Accumulation

| | Peak Period Shared Parking Demand by Land Use ¹ | | | | | | | |
|---------------------|---|-----------------------------|--------------------------|-------------------|-------------------|---------------|--------------|-----------------------------|
| Subarea | Hotel | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total | Unshared Requirement |
| Asian Garden | 40 | 0 | 0 | 326 | 61 | 0 | 427 | 468 |
| Moran Street | 0 | 173 | 6 | 215 | 215 | 173 | 782 | 896 |
| Total | 40 | 173 | 6 | 541 | 276 | 173 | 1,209 | 1,364 |

Note 1: Estimates by block based on land use projections provided by The Planning Center

Note: Totals may not add up 100% due to rounding in calculations.

Table 6.7 – Scenario 5 Weekend Total Shared Parking Space Accumulation

| | Peak Period Shared Parking Demand by Land Use ¹ | | | | | | | |
|---------------------|---|-----------------------------|--------------------------|-------------------|-------------------|---------------|--------------|-----------------------------|
| Subarea | Hotel | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total | Unshared Requirement |
| Asian Garden | 104 | 0 | 0 | 434 | 122 | 0 | 660 | 800 |
| Moran Street | 0 | 173 | 18 | 287 | 431 | 7 | 916 | 1,173 |
| Total | 104 | 173 | 18 | 721 | 553 | 7 | 1,576 | 1,973 |

Note 1: Estimates by block based on land use projections provided by The Planning Center

Note: Totals may not add up 100% due to rounding in calculations.

6.4 Expected Parking Demand by Block, Scenario 5

The shared use analysis was incorporated into a parking demand forecast by block. Tables 6.8 and 6.9 summarize the expected future peak parking demand in the project area by block for weekday and weekend, respectively, for Scenario 5. The projected peak parking demand is 1,209 spaces on a weekday and 1,576 spaces on a weekend.

Additional information on parking demand by block is included in Appendix B of this report.

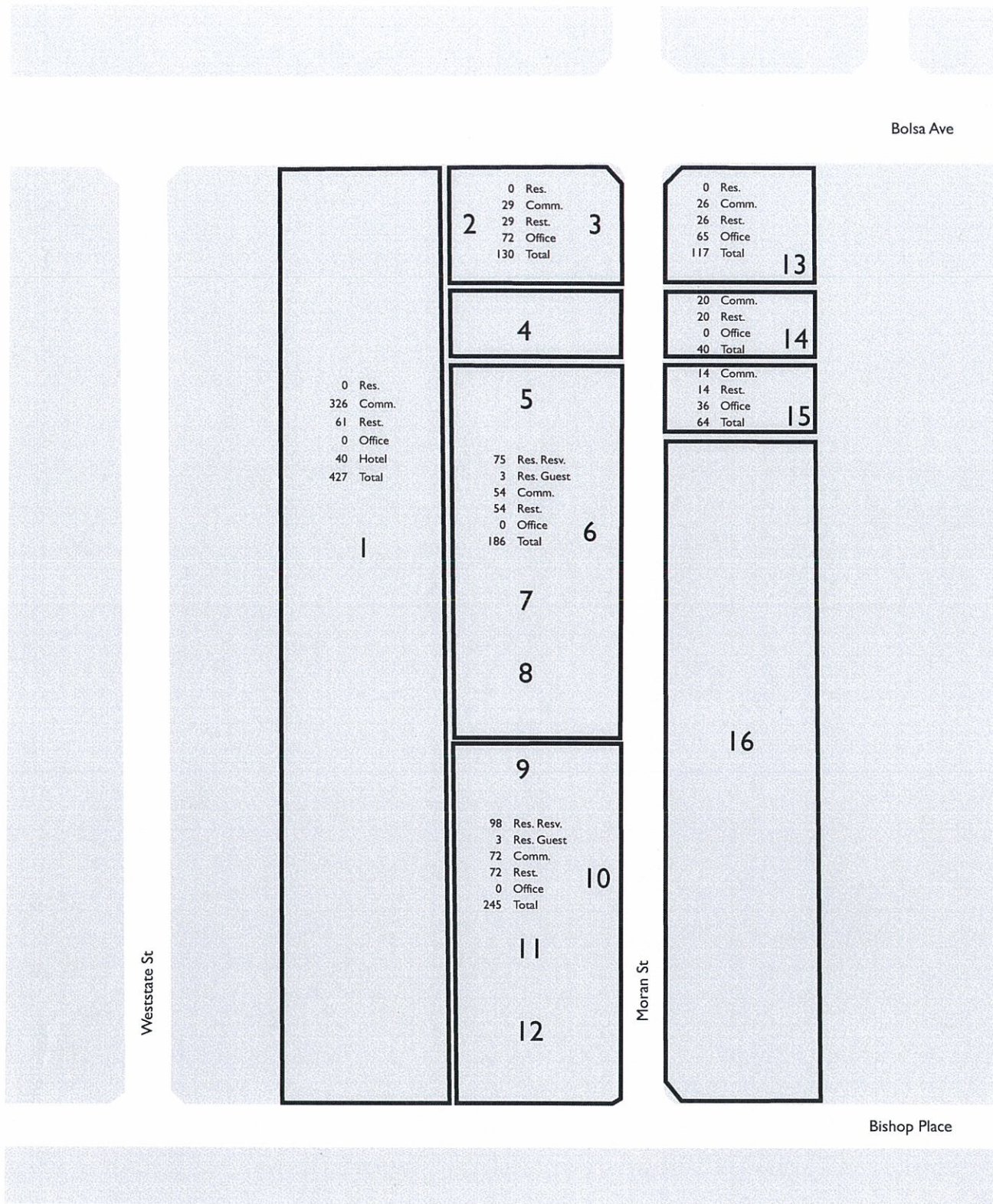
Figures 6.1 and 6.2 show the future weekday and weekend parking demand forecast for Scenario 5 during the times of peak parking demand based on the land use projections provided for the Comprehensive Plan project.

Table 6.8 – Future Weekday Peak Parking Demand by Block, Scenario 5

| Block | Hotel Parking Demand | Residential Reserved Parking Demand | Residential Guest Parking Demand | Commercial Parking Demand | Restaurant Parking Demand | Office Parking Demand | Total Parking Demand |
|--------------|----------------------|-------------------------------------|----------------------------------|---------------------------|---------------------------|-----------------------|----------------------|
| 1 | 40 | 0 | 0 | 326 | 61 | 0 | 427 |
| 2, 3 | 0 | 0 | 0 | 29 | 29 | 72 | 130 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 – 8 | 0 | 75 | 3 | 54 | 54 | 0 | 186 |
| 9 - 12 | 0 | 98 | 3 | 72 | 72 | 0 | 245 |
| 13 | 0 | 0 | 0 | 26 | 26 | 65 | 117 |
| 14 | 0 | 0 | 0 | 20 | 20 | 0 | 40 |
| 15 | 0 | 0 | 0 | 14 | 14 | 36 | 64 |
| Total | 40 | 173 | 6 | 541 | 276 | 173 | 1,209 |

Table 6.9 – Future Weekend Peak Parking Demand by Block, Scenario 5

| Block | Hotel Parking Demand | Residential Reserved Parking Demand | Residential Guest Parking Demand | Commercial Parking Demand | Restaurant Parking Demand | Office Parking Demand | Total Parking Demand |
|--------------|----------------------|-------------------------------------|----------------------------------|---------------------------|---------------------------|-----------------------|----------------------|
| 1 | 104 | 0 | 0 | 434 | 122 | 0 | 660 |
| 2, 3 | 0 | 0 | 0 | 38 | 58 | 3 | 99 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 – 8 | 0 | 75 | 8 | 72 | 108 | 0 | 263 |
| 9 - 12 | 0 | 98 | 10 | 96 | 144 | 0 | 348 |
| 13 | 0 | 0 | 0 | 35 | 52 | 3 | 90 |
| 14 | 0 | 0 | 0 | 27 | 40 | 0 | 67 |
| 15 | 0 | 0 | 0 | 19 | 29 | 1 | 49 |
| Total | 104 | 173 | 18 | 721 | 553 | 7 | 1,576 |

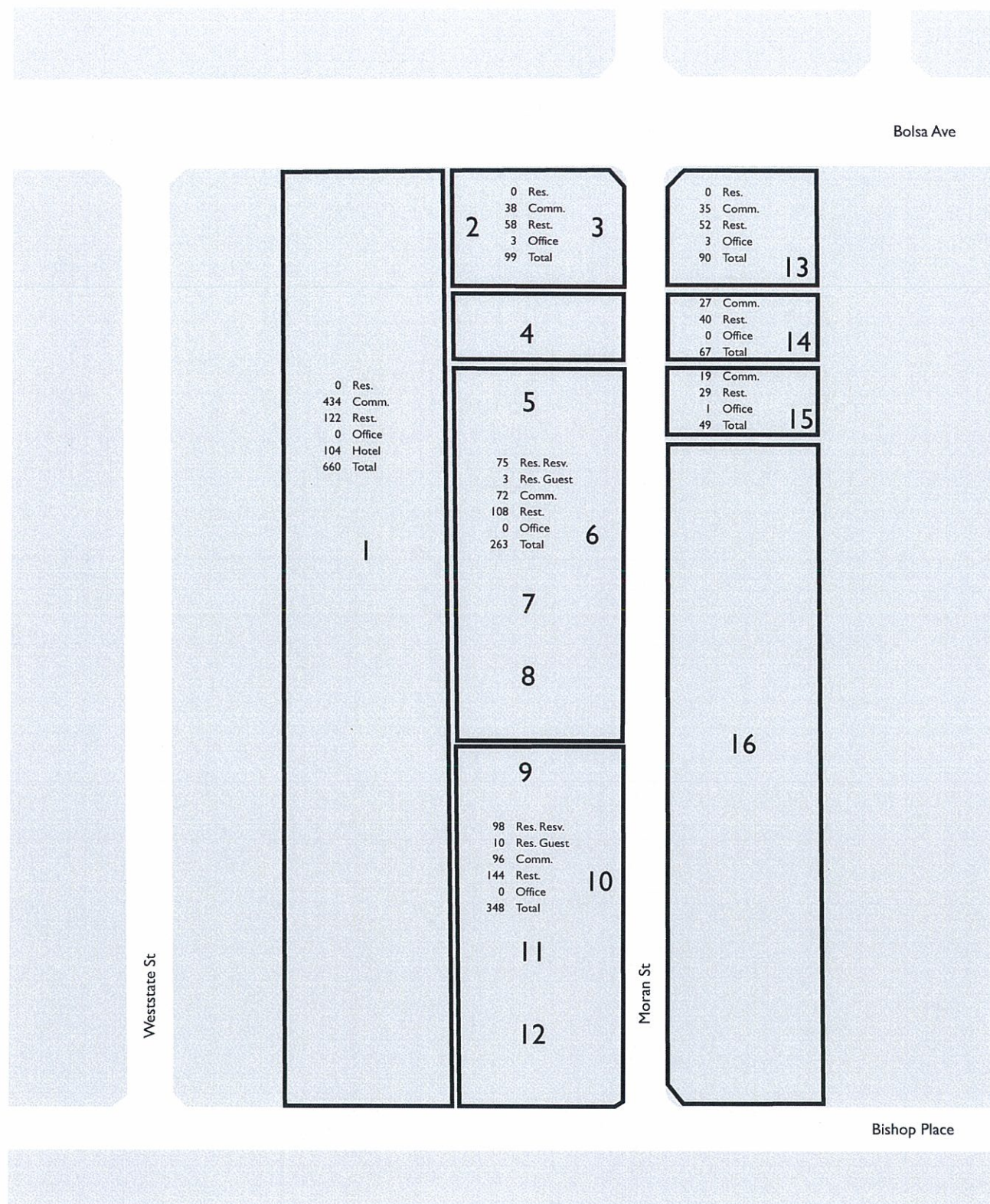


LEGEND

- # Block Zones
- XX Parking Spaces Required



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LEGEND

- # Block Zones
- XX Parking Spaces Required

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6.5 Shared Parking Accumulation, Scenario 6

A shared parking analysis is shown for Scenario 6 in Tables 6.10 and 6.11 for weekday and weekend parking. Scenario 6 combines all commercial parking demand in the Comprehensive Plan area into one or more parking structures. There is no shared use of residential reserved parking spaces under Scenario 6. Unreserved visitor spaces (0.25 space/unit) are included in the shared use calculations however. As shown in Table 6.10, although the unshared parking requirement for the Comprehensive Plan area is 1,221 spaces on weekdays, the shared use analysis shows that the maximum parking demand for the area is actually only 1,102 spaces (at 1 PM), with demand in the morning and evening hours significantly less.

Table 6.10 – Scenario 6 Weekday Shared Parking Space Accumulation

| Hour of Day | Hotel ¹ | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total Demand |
|-----------------------------|--------------------|----------------------|-------------------|------------|------------|--------|--------------|
| Unshared Requirement | 61 | 173 | 29 | 541 | 225 | 192 | 1,221 |
| 6:00 am | 58 | 173 | 0 | 5 | 0 | 5 | 241 |
| 7:00 am | 58 | 173 | 3 | 27 | 0 | 58 | 319 |
| 8:00 am | 55 | 173 | 6 | 81 | 0 | 144 | 459 |
| 9:00 am | 49 | 173 | 6 | 189 | 0 | 182 | 599 |
| 10:00 am | 43 | 173 | 6 | 352 | 34 | 192 | 800 |
| 11:00 am | 43 | 173 | 6 | 459 | 89 | 192 | 962 |
| 12:00 noon | 40 | 173 | 6 | 513 | 169 | 173 | 1,074 |
| 1:00 pm | 40 | 173 | 6 | 541 | 169 | 173 | 1,102 |
| 2:00 pm | 43 | 173 | 6 | 513 | 145 | 192 | 1,072 |
| 3:00 pm | 43 | 173 | 6 | 487 | 89 | 192 | 990 |
| 4:00 pm | 46 | 173 | 6 | 487 | 114 | 173 | 999 |
| 5:00 pm | 49 | 173 | 11 | 513 | 169 | 96 | 1,011 |
| 6:00 pm | 52 | 173 | 18 | 513 | 213 | 48 | 1,017 |
| 7:00 pm | 52 | 173 | 29 | 513 | 224 | 19 | 1,010 |
| 8:00 pm | 55 | 173 | 29 | 434 | 224 | 14 | 929 |
| 9:00 pm | 58 | 173 | 29 | 270 | 224 | 5 | 759 |
| 10:00 pm | 58 | 173 | 29 | 163 | 213 | 2 | 638 |
| 11:00 pm | 61 | 173 | 23 | 54 | 169 | 0 | 480 |
| 12:00 Midnight | 61 | 173 | 15 | 0 | 56 | 0 | 305 |

Note 1: Weekday hotel parking demand is assumed to be half of weekend demand

As shown in table 6.11, on weekends the unshared parking requirement is 1,735 spaces, however with shared use the maximum parking demand for the area is only 1,415 spaces (at 2 PM) under Scenario 6.

Table 6.11 – Scenario 6 Weekend Shared Parking Space Accumulation

| Hour of Day | Hotel | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total Demand |
|-----------------------------|-------|----------------------|-------------------|------------|------------|--------|--------------|
| Unshared Requirement | 122 | 173 | 29 | 902 | 375 | 134 | 1,735 |
| 6:00 am | 116 | 173 | 0 | 7 | 0 | 0 | 296 |
| 7:00 am | 116 | 173 | 6 | 45 | 0 | 27 | 367 |
| 8:00 am | 110 | 173 | 6 | 89 | 0 | 81 | 459 |
| 9:00 am | 98 | 173 | 6 | 270 | 0 | 107 | 654 |
| 10:00 am | 85 | 173 | 6 | 451 | 0 | 120 | 835 |
| 11:00 am | 85 | 173 | 6 | 587 | 55 | 134 | 1,040 |
| 12:00 noon | 79 | 173 | 6 | 721 | 187 | 120 | 1,286 |
| 1:00 pm | 79 | 173 | 6 | 811 | 207 | 107 | 1,383 |
| 2:00 pm | 85 | 173 | 6 | 902 | 168 | 81 | 1,415 |
| 3:00 pm | 85 | 173 | 6 | 902 | 168 | 53 | 1,387 |
| 4:00 pm | 92 | 173 | 6 | 858 | 168 | 27 | 1,324 |
| 5:00 pm | 98 | 173 | 11 | 811 | 224 | 14 | 1,331 |
| 6:00 pm | 104 | 173 | 18 | 721 | 337 | 7 | 1,360 |
| 7:00 pm | 104 | 173 | 29 | 676 | 355 | 0 | 1,337 |
| 8:00 pm | 110 | 173 | 29 | 587 | 375 | 0 | 1,274 |
| 9:00 pm | 116 | 173 | 29 | 451 | 337 | 0 | 1,106 |
| 10:00 pm | 116 | 173 | 29 | 316 | 337 | 0 | 971 |
| 11:00 pm | 122 | 173 | 23 | 135 | 337 | 0 | 790 |
| 12:00 Midnight | 122 | 173 | 15 | 0 | 187 | 0 | 497 |

Tables 6.12 and 6.13 provide the shared parking demand forecast for the two subareas for weekday and weekend conditions, respectively, under Scenario 6. The summaries indicate the parking demand that can be expected, assuming shared parking arrangements are made for all the commercial parking demand. This demand will likely be accommodated in one or more parking structures within the Comprehensive Plan area. As shown in Tables 6.12 and 6.13, the shared parking forecast for Scenario 6 results in a peak parking demand of 1,102 spaces on weekdays and 1,415 spaces on weekends. The total stand-alone parking requirement for the Comprehensive Plan area is 1,221 spaces on weekdays and 1,734 spaces on weekends under Scenario 6, indicating a reduction of 119 spaces on weekdays and 319 spaces on weekends.

Table 6.12 – Scenario 6 Weekday Shared Parking Space Accumulation

| | Peak Period Shared Parking Demand by Land Use ¹ | | | | | | | |
|---------------------|---|-----------------------------|--------------------------|-------------------|-------------------|---------------|--------------|-----------------------------|
| Subarea | Hotel | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total | Unshared Requirement |
| Asian Garden | 40 | 0 | 0 | 326 | 61 | 0 | 427 | 468 |
| Moran Street | 0 | 173 | 6 | 215 | 108 | 173 | 675 | 753 |
| Total | 40 | 173 | 6 | 541 | 169 | 173 | 1,102 | 1,221 |

Note 1: Estimates by block based on land use projections provided by The Planning Center

Note: Totals may not add up 100% due to rounding in calculations.

Table 6.13 – Scenario 6 Weekend Shared Parking Space Accumulation

| | Peak Period Shared Parking Demand by Land Use ¹ | | | | | | | |
|---------------------|---|-----------------------------|--------------------------|-------------------|-------------------|---------------|--------------|-----------------------------|
| Subarea | Hotel | Residential Reserved | Residential Guest | Commercial | Restaurant | Office | Total | Unshared Requirement |
| Asian Garden | 85 | 0 | 0 | 543 | 61 | 0 | 689 | 800 |
| Moran Street | 0 | 173 | 6 | 359 | 107 | 81 | 726 | 934 |
| Total | 85 | 173 | 6 | 902 | 168 | 81 | 1,415 | 1,734 |

Note 1: Estimates by block based on land use projections provided by The Planning Center

Note: Totals may not add up 100% due to rounding in calculations.

In conclusion, shared parking accumulation for Scenario 6 generally results in a reduction in parking demand by about 10% on weekdays and 18% on weekends.

6.6 Expected Parking Demand by Block, Scenario 6

Tables 6.14 and 6.15 summarize the expected future peak parking demand and projected parking supply in the project area by block for weekday and weekend, respectively, under Scenario 6, based on expected parking demand due to the planned land uses and required shared use parking spaces.

Figures 6.3 and 6.4 show the future weekday and weekend parking demand forecast for Scenario 6 during the times of peak parking demand based on the land use growth projections provided for the Comprehensive Plan project.

It should be noted that although the tables show the specific blocks where the parking demand is actually generated, under Scenario 6 the majority of the commercial parking supply will be provided in off-site parking areas, while the residential demand is self-parked within their own respective blocks. Please see Section 7 for the parking allocation analysis.

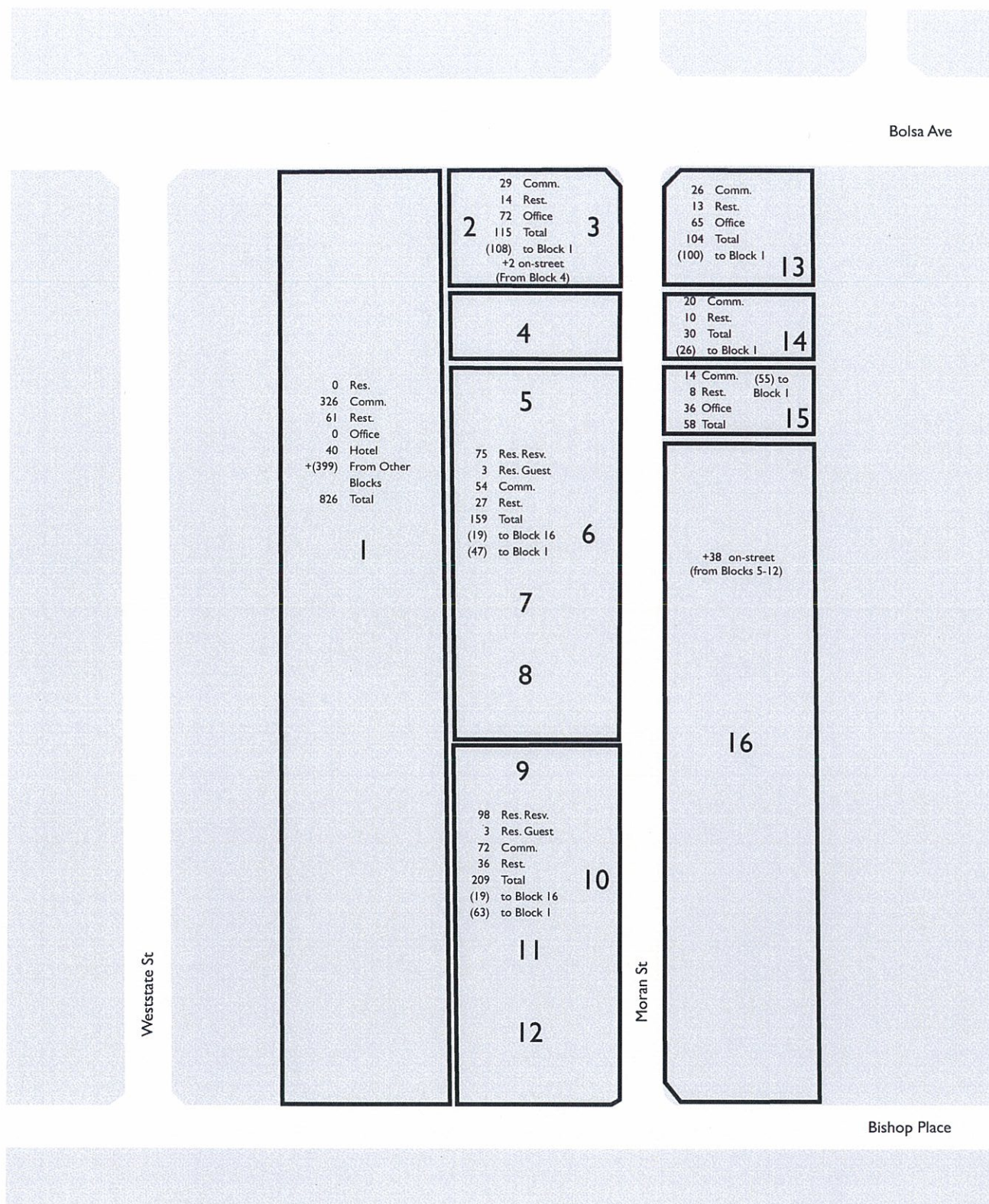
Additional information on land use and parking demand projections is provided in Appendix B of this report.

Table 6.14 – Future Weekday Peak Parking Demand by Block, Scenario 6

| Block | Hotel Parking Demand | Residential Reserved Parking Demand | Residential Guest Parking Demand | Commercial Parking Demand | Restaurant Parking Demand | Office Parking Demand | Total Parking Demand |
|--------------|----------------------|-------------------------------------|----------------------------------|---------------------------|---------------------------|-----------------------|----------------------|
| 1 | 40 | 0 | 0 | 326 | 61 | 0 | 427 |
| 2, 3 | 0 | 0 | 0 | 29 | 14 | 72 | 115 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 – 8 | 0 | 75 | 3 | 54 | 27 | 0 | 159 |
| 9 - 12 | 0 | 98 | 3 | 72 | 36 | 0 | 209 |
| 13 | 0 | 0 | 0 | 26 | 13 | 65 | 104 |
| 14 | 0 | 0 | 0 | 20 | 10 | 0 | 30 |
| 15 | 0 | 0 | 0 | 14 | 8 | 36 | 58 |
| Total | 40 | 173 | 6 | 541 | 169 | 173 | 1,102 |

Table 6.15 – Future Weekend Peak Parking Demand by Block, Scenario 6

| Block | Hotel Parking Demand | Residential Reserved Parking Demand | Residential Guest Parking Demand | Commercial Parking Demand | Restaurant Parking Demand | Office Parking Demand | Total Parking Demand |
|--------------|----------------------|-------------------------------------|----------------------------------|---------------------------|---------------------------|-----------------------|----------------------|
| 1 | 85 | 0 | 0 | 543 | 61 | 0 | 689 |
| 2, 3 | 0 | 0 | 0 | 48 | 14 | 34 | 96 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 – 8 | 0 | 75 | 3 | 90 | 27 | 0 | 195 |
| 9 - 12 | 0 | 98 | 3 | 120 | 36 | 0 | 257 |
| 13 | 0 | 0 | 0 | 43 | 13 | 30 | 86 |
| 14 | 0 | 0 | 0 | 34 | 10 | 0 | 44 |
| 15 | 0 | 0 | 0 | 24 | 7 | 17 | 48 |
| Total | 85 | 173 | 6 | 902 | 168 | 81 | 1,415 |

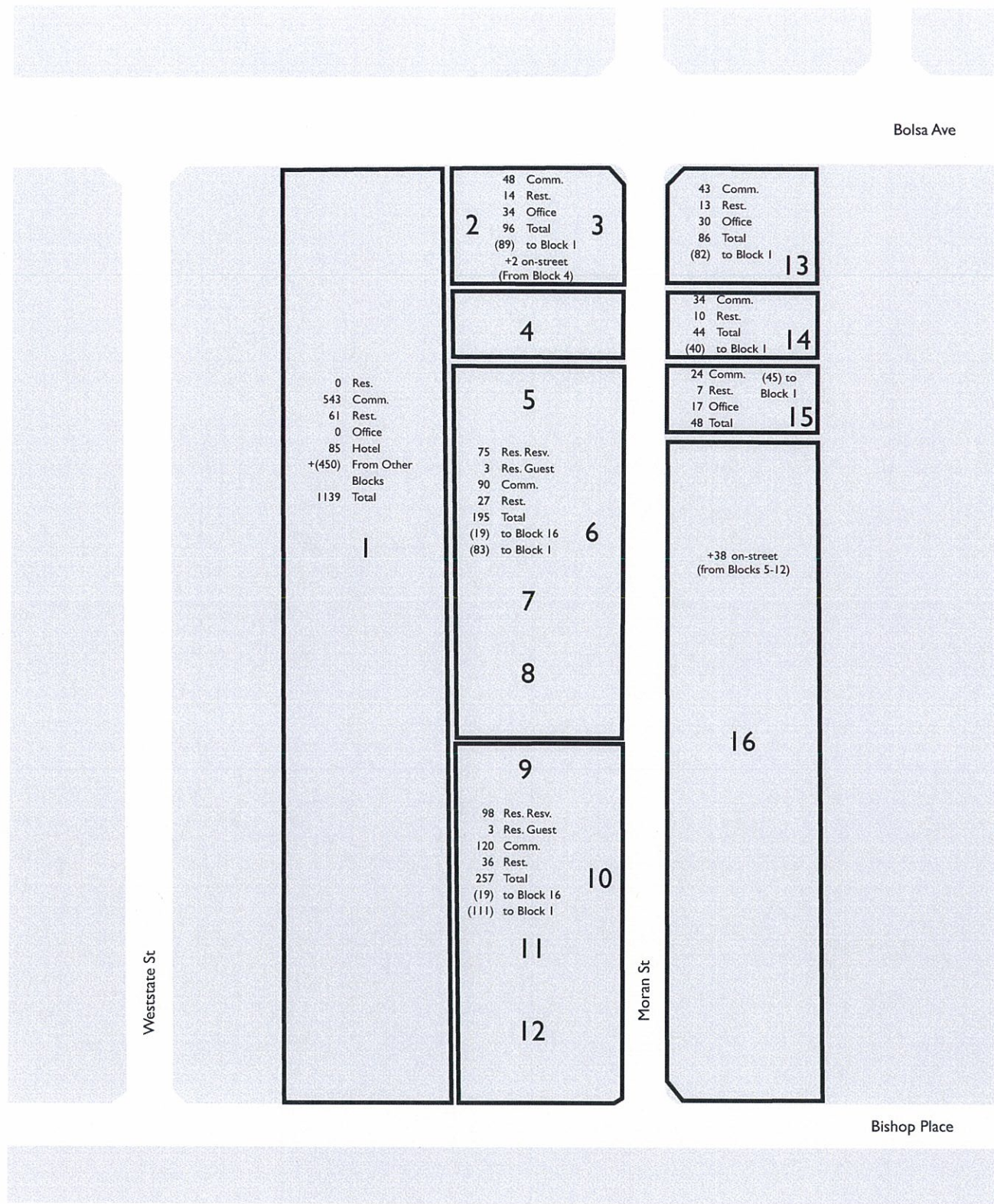


LEGEND

- # Block Zones
- XX Parking Spaces Required
- (XX) Parking Allocated Off-Site



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LEGEND

- # Block Zones
- XX Parking Spaces Required
- (XX) Parking Allocated Off-Site

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7. Parking Allocation

This report section discusses the method for providing the required parking supply for the two project Scenarios. It basically projects where the parking space demands will be met for each scenario. It is primarily used to identify the block-by-block site parking requirements of Scenario 5 and the net off-site parking requirement for Scenario 6. In the final section, it discusses the most feasible alternatives for meeting the large off-site parking requirements of Scenario 6

7.1 Scenario 5 Parking Allocation

The weekday and weekend parking demand forecasts presented in Section 6 and the projected Comprehensive Plan land use distribution has been developed into a recommended parking space allocation for the Comprehensive Plan area under Scenario 5. A total parking supply of at least 1,576 spaces is recommended to meet the demands of the Comprehensive Plan land uses under this scenario, while ensuring that parking can be found conveniently. The projected supply includes a 15% turnover factor so there is no difficulty finding parking (please see Section 4.3 -Parking Demand Rates).

Parking space allocation by block is shown for Scenario 5 in Table 7.1 below. The recommended parking allocation for Scenario 5 is also shown on Figure 7.1 on the following page. Parking space allocation assumes the weekend parking demand by block (presented previously in Section 6.4), as it is the more conservative (higher) number. Additional information on parking demand by block is included in Appendix B of this report.

Table 7.1 – Parking Space Allocation, Scenario 5

| Zone | Block | Peak Parking Demand | Residential Reserved Parking Spaces | Residential Guest Parking Spaces | On-Site Unreserved Parking Spaces | On-Street Parking Spaces | Off-Site Parking Spaces ¹ |
|--------------|--------|---------------------|-------------------------------------|----------------------------------|-----------------------------------|--------------------------|--------------------------------------|
| 1 | 1 | 660 | 0 | 0 | 652 | 8 | 0 |
| 2 | 2, 3 | 99 | 0 | 0 | 92 | 7 ² | 0 |
| | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 5 – 8 | 263 | 75 | 8 | 165 | 15 | 0 |
| | 9 - 12 | 348 | 98 | 10 | 214 | 26 | 0 |
| | 13 | 90 | 0 | 0 | 86 | 4 | 0 |
| | 14 | 67 | 0 | 0 | 63 | 4 | 0 |
| | 15 | 49 | 0 | 0 | 46 | 3 | 0 |
| Total | | 1,576 | 173 | 18 | 1,318 | 67 | 0 |

Note 1: There is no off-site parking provided under Scenario 5; All properties provide parking on-site.

Note 2: 5 on-street spaces + 2 on-street spaces from Block #4.



The recommended allocation would be accompanied by a parking management plan that reduces demand for the most popular parking locations through time limits, enforcement, and parking fees. Also, provisions to ensure that there are sufficient parking alternatives for all potential users.

7.2 Scenario 6 Parking Allocation

Parking for Scenario 6 is primarily allocated to off site parking for most blocks. Only the Asian Garden Mall block is anticipated to provide a significant amount of on-site parking. Blocks containing residential development are assumed to provide secured parking for residents. Guest parking is provided on-site at the rate of 0.25 spaces/unit. On street parking that is situated adjacent to the specific blocks is indicated to partially meet the demands of each block, but the majority of all parking demand is allocated to off site parking.

Parking space allocation assumes the weekend parking demand by block (presented previously in Section 6.6), as it is the more conservative (higher) number. Additional information on parking demand by block is included in Appendix B of this report.

Table 7.2 indicates the allocation of parking for each development block. The table indicates the amount of off site parking required for the development area is 459 stalls. This is the amount of parking that is expected to be provided in parking structures and other shared parking areas. The alternatives for allocation of this parking demand are discussed in the following report section.

Table 7.2 – Parking Space Allocation, Scenario 6

| Zone | Block | Peak Parking Demand | Residential Reserved Parking Spaces | Residential Guest Parking Spaces | On-Site Unreserved Parking Spaces | On-Street Parking Spaces | Off-Site Parking Spaces |
|--------------|--------|---------------------|-------------------------------------|----------------------------------|-----------------------------------|--------------------------|-------------------------|
| 1 | 1 | 689 | 0 | 0 | 681 | 8 | 0 |
| 2 | 2, 3 | 96 | 0 | 0 | 0 | 7 * | 89 |
| | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 5 – 8 | 195 | 75 | 3 | 13 | 15 | 89 |
| | 9 - 12 | 257 | 98 | 3 | 16 | 26 | 114 |
| | 13 | 86 | 0 | 0 | 0 | 4 | 82 |
| | 14 | 44 | 0 | 0 | 0 | 4 | 40 |
| | 15 | 48 | 0 | 0 | 0 | 3 | 45 |
| Total | | 1,415 | 173 | 6 | 710 | 67 | 459 |

Note: * 5 on-street spaces + 2 on-street spaces from Block # 4.

7.3 Allocation of Off-Site Parking for Scenario 6

7.3.1 Overview

Scenario 6 was developed to provide a “snapshot” of development and to provide a basis for understanding the parking needs for a certain level and intensity of development. It should be noted that the ultimate design and location of surface parking lots may be different than what is shown in the conceptual illustration. As property owners move forward with “real” development proposals that are different from the Scenario 6 concept, the location and quantity of parking allocated will need to be adjusted accordingly.

If the shared parking approach is applied to the study area, a total of 1,166 parking spaces would be required to accommodate the uses proposed under Scenario 6. Shared parking facilities can be comprised of a combination of on-street parking, off-site surface parking lots, or parking structures in the Moran Street areas.

Approximately 44 of the required spaces can be provided on Moran Street or in a surface parking lot for properties located on Moran Street, leaving a total of 1,122 off-site parking spaces that would need to be allocated in parking facilities throughout the project area.

Approximately 681 parking stalls would be required to accommodate the uses related to the operation of the Asian Garden Mall and the hotel uses alone. The Asian Garden Mall has been considering construction of a parking structure south of the mall. Depending on the design of the structure, it could contain approximately 200-240 vehicles per floor, which translates to a 3-story parking structure solely for the uses in the Asian Garden Mall and the hotel.

Table 7.2 shows that a total of 459 off-site parking stalls (peak parking demand) must be met within the project area. This number includes the 44 parking spaces that can be accommodated on Moran Street and within the surface parking lot in Area 4. Therefore, a total of 415 spaces must be provided in off-site locations (excluding on-street parking or the surface parking lot shown in Area 4 in Scenario 6).

Additional Considerations

A parking surplus of about 322 vehicles has been built into the parking structure for the Saigon Villas project on the east side of Moran Street, which could possibly be used to help offset the parking demand in the project area, should the owner be agreeable to its use. The Asian Garden Mall structure could also be potentially constructed to provide a larger parking supply (additional levels above and beyond those needed for the Asian Garden Mall), and it may be feasible or necessary to construct an additional parking structure somewhere in the project area.

The following section provides an overview of various ways that parking demand can be met on Moran Street.

7.3.2 Parking Allocation Alternatives

Several off-site parking allocation options are possible under Scenario 6; three are outlined below:

Parking Option 1 – Asian Garden Mall Parking Structure

Under Option 1 all off-site shared parking demand (except a limited amount of on-street parking) is concentrated in a single parking structure that would be proposed on the site of the Asian Garden Mall parking lot. This allows for more efficient use of the land in the other blocks, however it raises issues regarding the height of the structure and concentration of traffic at just a few access points. This option assumes that the 322 surplus parking spaces located in the Saigon Villas are not available for shared off-site use, and that no alternative parcels can be identified elsewhere in the 30-acre study area that are suitable for construction of additional parking facilities. If all required parking were to be provided in a parking structure behind the Asian Garden Mall, this option would require a structure with approximately 1,166 parking spaces on 5 1/2 levels.

Parking Option 2 – Asian Garden Mall Parking Structure and Saigon Villas Surplus Spaces

Option 2 allocates some of the off-site parking demand by utilizing the surplus spaces in the Saigon Villas development, thus reducing the required supply and size of the Asian Garden Mall parking structure by 322 spaces. This plan results in a redistribution of the expected project related traffic. Option 2 provides two separate parking structures options within the study area. Therefore, the operational conditions at the Asian Garden Mall parking structure access points are expected to improve due to the reduced intensity of destination trips. A structure on the site of the Asian Garden Mall parking lot with 844 parking spaces on 4 levels would be required under this option. The availability of the 322 parking spaces in Saigon Villas is uncertain at this time, however.

7.3.3 Conclusions

While all of the parking plans accommodate the same number of parked vehicles, Option 1, that accommodates all of the study area's parking demand in a single parking structure behind the Asian Garden Mall, is the more efficient and practical alternative from a design, circulation, and construction timing perspective.

Option 2 (Asian Garden Mall parking structure plus Saigon Villas surplus parking spaces) takes advantage of the parking supply surplus in the Saigon Villas structure, however the availability of the 322 parking spaces in Saigon Villas is in question. It would require a structure of just 4 levels on the Asian Garden site, eliminating the need for speed ramps.

It should be noted that any off-site parking plan should be accompanied by a parking management plan (PMP) that will reduce demand for the most popular parking locations through time limits, enforcement, and parking fees. Also, a PMP would include provisions to ensure that there are sufficient parking alternatives for all potential users. These parking management strategies are regularly used by operators

of private parking lots and by cities that manage downtown public parking areas. They are generally necessary to prevent early arriving employees from parking all day in the best parking spaces. These include all on-street parking in front of businesses and the ground floor of all nearby parking structures. The following chapter discusses some of the strategies that will most likely need to be considered for implementation the project area due to the private/public nature of parking and the appeal of a small number of parking spaces.

Table 7.3 shows the parking allocation as described in Parking Option 1 for Scenario 6. Figure 7.2 shows the recommended allocation of parking among existing and proposed parking facilities in the project area.

Table 7.3 – Recommended Parking Plan, Scenario 6

| Zone | Block | Peak Parking Demand | Residential Reserved Parking Spaces | Residential Guest Parking Spaces | On-Site Unreserved Parking Spaces | On-Street Parking Spaces | Off-Street Parking Spaces |
|--------------|--------|---------------------|-------------------------------------|----------------------------------|-----------------------------------|--------------------------|---------------------------|
| 1 | 1 | 689 | 0 | 0 | 4 | 0 | 1,166 |
| 2 | 2, 3 | 96 | 0 | 0 | 0 | 5 | 0 |
| | 4 | 0 | 0 | 0 | 0 | 2 | 0 |
| | 5 – 8 | 195 | 75 | 3 | 13 | 11 | 0 |
| | 9 - 12 | 257 | 98 | 3 | 16 | 16 | 0 |
| | 13 | 86 | 0 | 0 | 0 | 0 | 0 |
| | 14 | 44 | 0 | 0 | 0 | 0 | 0 |
| | 15 | 48 | 0 | 0 | 0 | 3 | 0 |
| Total | | 1,415 | 173 | 6 | 33 | 37 | 1,166 |

Any significant off-site parking plan should be accompanied by a parking management plan (PMP) that will reduce demand for the most popular parking locations through time limits, enforcement, and parking fees. Also, a PMP would include provisions to ensure that there are sufficient parking alternatives for all potential users. These parking management strategies are regularly used by operators of private parking lots and by cities that manage downtown public parking areas. They are generally necessary to prevent early arriving employees from parking all day in the best parking spaces. These include management of all on-street parking in front of businesses and the ground floor of all nearby parking structures. The following report chapter discusses some of the strategies that will likely be needed for consideration in the project area due to the private/public nature of parking and the appeal of a small number of parking spaces.



8. Parking Management Strategies

Parking management strategies are techniques and programs that maximize the benefit and utility of parking areas. These strategies determine the best and highest use of each parking area or sub area and manage the space in a manner that is optimal.

This report identifies and discusses certain parts of the Comprehensive Plan area including specific segments of Moran Street and the Asian Garden Mall Drive Aisle that will benefit from parking management measures. Parking deficiencies in these areas may arise due to limited on-street parking for popular retail and restaurants along the street. These deficiencies can be prevented by insuring that the “hot spots” are properly managed and parking in these areas is used in the most appropriate and efficient manner. The following sections describe a variety of management practices that can be used to best manage these areas.

8.1 Time Limit Parking

The most valuable tool for ensuring the proper and efficient distribution of parking has traditionally been time limits. Parking areas that are needed for customers and short-term turnover are identified and posted properly, typically with shorter time limits than for less desirable areas. The intent is to ensure that the most desirable parking spaces are readily available to as many potential users as possible. A parking stall with a two-hour time limit and user compliance can be used by four customers within an eight-hour time period. However, if the same time limit parking space is occupied by a single vehicle all day in violation of the time limit, the vehicle is likely not a customer. Parking for at least four potential customers has therefore been denied by a single long-term user occupying the space.

Identification of parking areas that are most desirable for customers and areas that are most appropriate for longer duration parking is a proper strategy to pursue in managing urban parking demand. Posting and enforcement of appropriate time limits and signage to direct long-term parking to municipal and private lots or less desirable on-street areas is an appropriate strategy for efficient parking management. Administration and enforcement of time limit restrictions in more desirable customer areas in a manner that discourages their use for long term parking can be an effective means of managing short-term parking supply. Areas appropriate for long-term (employee) parking are generally in peripheral parking areas. These policies can be enforced by the individual business owners or managers.

Where overall utilization of all parking areas is generally in balance parking use can be considered optimized. Customers and other short-term users can typically find parking that is sufficiently convenient to not discourage the trip, while users of long term parking are able to find parking that is within a reasonable walking distance of their destination, generally within about 300 feet. Adequate security must be provided for the parked vehicle and the walking trip to encourage use of the remote parking facility.

Optimization of parking utilization will require microscopic application of parking regulations. For example, a few stalls on each desirable block can be established as loading zones, valet zones, very short-term parking stalls (6-12 minutes), or other specialized uses, provided there is a reasonable demand for this type of parking. Also, time limits and any parking fee imposed may differ by block or side of street to better distribute demand. It should be noted that it is not appropriate to designate time limits or fees imposed for parking spaces in such a manner as there is no demand for the time limit or usage identified for that space.

Measures that encourage long-term parking to relocate to more suitable parking areas such as a structure should be applied when parking problems are only observed in short term parking areas and in hot spots. Measures to achieve this include time limits, pay parking, and permit parking. Such policies can be used to achieve better utilization balance.

When parking use has been optimized and parking shortages persist in both short term and long term areas, expansion of parking supply is the next logical consideration. Expansion of supply can mean building structures on lots, or creative solutions such as restricting side streets to one-way and installing angled parking

Implementation and/or enforcement of time limits can be an important management tool to apply to the most desirable parking spaces in order to assure that spaces most suitable for short-term use, primarily on-street spaces in front of retail and commercial businesses, are available for that use. Long-term parking should be directed to lots and structures intended for that purpose. Also, time limits on on-street parking in residential areas encourage residents to park in their own designated spaces.

The intention of parking time limits should be to maximize the availability of these spaces to customers, visitors, and short-term resident parking.

Many engineers and planners have advocated that parking regulations should be designed to ensure that there is always at least one available parking space on any desirable street frontages. This assures parking accessibility and reduces travel looking for parking. A target of at least a 15% vacancy rate has been suggested and is recommended by industry guidelines such as ULI and ITE. This is accomplished sequentially by establishment of time limits, shortening of time limits as needed, and institution of parking charges, where appropriate or necessary.

Time limits have been found to be appropriate for on-street parking when there is a mix of land use types such as retail, restaurant, and residential, particularly for mixed-use developments with residential and retail/restaurant components that have night-time operating hours. A reasonable time limit for on-street parking in these areas encourages residents to use their assigned off-street parking spaces.

8.2 Parking Enforcement

For time limit parking strategies to be effective in areas of high parking demand, parking enforcement is required to ensure that the time limits are honored. Minimal enforcement of time limit parking is

common in areas where there is not a strong demand for time limit parking. In areas where demand is light, business tends to be weak. A fear that frequent parking citations will deter further business is therefore created. In these areas it would be appropriate to lengthen the time limit to attract users from more desirable areas.

However, where there is a strong demand for on-street parking coupled with a desire to increase activity level, development goals, and vitalization, increased enforcement is required to ensure continued availability of short-term parking.

Time limit parking can be enforced either by marking vehicle tires, through the use of conventional parking meters such as used in Old Pasadena and Laguna Beach, or with centrally located pay-and-display parking permit vending machines. Parking meters are more efficient than marking tires, as they only require one visit to cite an overtime vehicle. Marking of vehicle tires requires two visits by a parking enforcement officer, often discouraging enforcement. Parking meters or hourly permits would only require one visit by an enforcement officer, though it has been shown that vehicles will avoid parking in metered areas in order to avoid payment. If parking meters and/or shorter time limits were imposed on certain street segments in the project area it might also be necessary to impose time limits on nearby streets to prevent spillover parking to these areas, particularly residential areas adjacent to commercial areas where shorter time limits and/or meters are implemented.

8.3 Metered Parking

Metered parking in conjunction with streetscape improvements would be one strategy for reducing on-street parking demand along segments of Moran Street and the Asian Garden Mall Drive Aisle where demand is expected to be high and parking supply is expected to decrease due to construction of streetscape features such as curb extensions. Parking meter revenue generated by such a metering program could be used to upgrade landscaping and street furniture in front of businesses where metered parking is implemented.

One of the best examples of the use of parking meters for parking management and revenue generation is in Old Pasadena. The City of Pasadena now has over 1,200 parking meters in operation in three areas in the City: Old Pasadena, the Civic Center, and the Western Gateway. The parking revenue generated from these meters has been reinvested in the areas of generation to maintain the streets, sidewalks and alleys, and to provide new lighting, signs, landscaping, and other streetscape features adding to the areas pedestrian-friendly atmosphere.

Parking meter options currently available to the City include traditional coin-operated parking meters, park, pay, and display smart parking meters, and advanced smart parking meters.

8.4 Parking Guide Signage

Appropriate signage can help redirect parking demand to more appropriate locations. Generally signage in downtown areas has a standard appearance, and motorists look for these standard public parking signs. These signs are distinguished by the green border, reflective white background, prominent and